

Gravina Access Project
Preliminary Quantities and Cost Estimate
Technical Memorandum

Draft



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DOT&PF Project 67698
Federal Project ACHP-0922(5)

Prepared for:



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Executive Summary

Current Gravina Access Project costs are presented for access to the airport terminal and highway access to developable lands north of the airport. The cost resulting from access to developable land varies by alternative, largely depending on where each alternative makes landfall on Gravina and the distance to airport development land north of the airport.

The summary table titled future airport development identifies the cost associated with providing the airport with sufficient parking to meet the projected year 2025 parking demand. Although initial parking requirements could most likely be accommodated at the airport without construction of a parking garage under the current airport configuration additional parking will need to be added to the airport at some time in the future.

| Airport Access | | | |
|----------------|-------------|---|------------------------------------|
| | Alternative | Total Estimated Project Cost (\$ million) | Life Cycle Total Cost (\$ million) |
| 200' Bridges | C3(a2)-200 | 160 | 133 |
| | F3(2)-200 | 167 | 144.0 |
| | C4(a2)-200 | 171 | 142 |
| 120' Bridges | D1-120 | 102 | 86 |
| | C3(b)-120 | 153 | 129 |
| Ferries | G2 | 58 | 99 |
| | G3 | 46 | 85 |
| | G4 | 35 | 74 |

| Developable Land Access | | | |
|-------------------------|-------------|---|------------------------------------|
| | Alternative | Total Estimated Project Cost (\$ million) | Life Cycle Total Cost (\$ million) |
| 200' Bridges | C3(a2)-200 | 15 | 14 |
| | F3(2)-200 | 10 | 9 |
| | C4(a2)-200 | 15.2 | 13 |
| 120' bridges | D1-120 | 14 | 15 |
| | C3(b)-120 | 14 | 13 |
| Ferries | G2 | 0 | 0 |
| | G3 | 10 | 12 |
| | G4 | 15 | 17 |

| Future Airport Development | | |
|----------------------------|---|------------------------------------|
| All Alternatives | Total Estimated Project Cost (\$ million) | Life Cycle Total Cost (\$ million) |
| Parking Garage | 11 | 9 |

| Section | Page |
|---|-------------|
| Executive Summary | SUM-1 |
| 1.0 Introduction | 1 |
| 2.0 Previous Cost Estimates | 1 |
| 3.0 Initial Alternatives Cost Comparisons | 1 |
| 4.0 Costs for the Reasonable Alternatives | 2 |
| 5.0 Life Cycle Cost Comparison | 4 |
| 5.1 Definition of Life Cycle Cost..... | 5 |
| 5.2 Cash Flow | 5 |
| 5.3 Present Worth..... | 7 |
| 5.4 Salvage Value..... | 8 |
| 6.0 Calculating Life Cycle Costs for Gravina Access Project..... | 9 |
| 6.1 Summary of Alternatives and their Cash Flow Components (in constant Year 2003 dollars) | 11 |

1.0 Introduction

The Gravina Access Project was commissioned in 1999 by ADOT&PF to study ways to improve access from Ketchikan on Revillagigedo Island to Gravina Island. Gravina Island is home to Ketchikan International Airport, as well as much of the developable land available within the Ketchikan area. This technical memorandum has developed estimated costs for comparison purposes for the reasonable alternatives. Cost estimates include not only the construction cost, but also program development and life cycle costs, including operation and maintenance costs.

2.0 Previous Cost Estimates

Earlier in this project in order to compare the initial alternatives, costs were developed in the late winter and early spring of 2000 for all alternatives. In this way, one alternative or mode was not unfairly compared with other alternatives or modes. The basis of cost comparison for the original list of alternatives was as follows:

- Major items were estimated through quantity calculations, such as earthwork, pavement, number of stream crossings, bridge deck area, foundation costs, ferry acquisition and terminal costs, and tunnel cost per linear meter.
- All other items were estimated based on a percentage of the major items.
- Unit prices applied were based on recent bid tabs or recent engineering estimates for similar projects, specifically, the Boston Harbor tunnel, the Benicia Martinez Bridge, the new airport ferry being built in Ketchikan, and the recently constructed 3rd Street project in Ketchikan

In addition to the construction costs, Program Development costs were calculated based on the total estimated construction cost. Program Development costs were initially defined as:

- | | |
|------------------------------|-----|
| • Miscellaneous Contingency | 35% |
| • Environmental Mitigation | 10% |
| • Engineering/Administration | 8% |
| • Construction Management | 15% |

Alignment specific right of way costs were also added to the total to determine the Program Development costs and the Total Estimated Project Cost for each option.

3.0 Initial Alternatives Cost Comparisons

In the earlier portion of the Gravina Access Project 18 alternatives were investigated, establishing engineering criteria, crossing concepts, summary of potential environmental impacts and costs, all for purposes of comparison of the alternatives. Engineering criteria established for the cost comparison included:

- Roadway cross-section included two travel lanes of 3.6m (11.8 ft.) and two shoulders of 2.5 m (8.2 ft) in width. Also included was a bike path of 2.4m (7.9 ft.) in width.
- Design speed was 90 KPH (55.9 MPH).
- Maximum grade was 6%.
- Cost estimates included access from Tongass Avenue to the airport terminal only.

Construction and Program Development Costs were established as presented below:

| Alternative | Total Estimated Project Cost (\$ million) |
|-------------------|---|
| A1 | 268.8 |
| B1 | 384.9 |
| C1 | 242.0 |
| C2 | 205.3 |
| C3 | 145.8 |
| C4 | 152.5 |
| D1 | 89.2 |
| D2 | 248.7 |
| E1 | 262.6 |
| E2 | 350.2 |
| F1 | 205.8 |
| F1 (cable stayed) | 210.9 |
| F2 | 553.2 |
| F3 | 181.6 |
| G1 | 71.5 |
| G2 | 66.2 |
| G3 | 47.1 |
| G4 | 42.7 |

Note: These costs were developed in January 2000.

4.0 Costs for the Reasonable Alternatives

Initial screening of the 18 alternatives resulted in identifying eight alternatives as reasonable for further study in this phase of the project. The reasonable alternatives have been refined to more accurately establish environmental impacts, and to review the project costs for comparison purposes. During that process, the following changes were made:

- The roadway width was reduced to remove the separate bike path, which narrowed the overall highway section by 2.6 meters. This resulted in a reduced lane mile cost for the roadway estimate.
- The roadway profile was adjusted to reflect a revised design speed for the alignment of 70 KPH (43.5 MPH). Maximum grade changed from 6% to 8% on the roadway and on approaches to the bridge alternatives.
- The unit costs for the bridge were adjusted to reflect the actual bids received on the Benicia Martinez Bridge a concrete box girder structure being built this fall. In addition costs for major civil construction on the west coast were reviewed and adjustments to the bridge components made to recognize the current market conditions. This has resulted in an increase in the bridge costs.
- Contingencies were adjusted to reflect the estimated risk by each major item. For example, the bridge foundation cannot be accurately estimated until site-specific geotechnical information is available. For that reason, that specific item has been assigned a 25% contingency.
- Mitigation contingency was changed to 2% of construction cost, capped at \$2 million.
- Construction Management is estimated at 11% of construction cost.
- Miscellaneous Roadway Items: An analysis was conducted of ADOT&PF bid tab summaries for 1995 to 1999, to establish relationships between the overall cost of roadway items and the cost of various miscellaneous items. Based on this analysis, three categories for miscellaneous roadway items were added to the cost estimate:
 - Removal Items - at 6% of roadway costs
 - Other Excavation & Emb. - at 3% of roadway costs
 - Miscellaneous Items - at 25% of roadway costs
- Because of the item-specific contingency, and the miscellaneous roadway items described above, the overall project contingency has been reduced to 15%. This is lower than normal at this stage, but appropriate because of the use of item specific contingencies.
- The ferry acquisition cost has been reviewed and adjusted based on additional information available from the new airport ferry construction.
- The cost of an access road to developable lands north of the airport on Gravina Island has been estimated for all alternatives. This cost is identified in the cost analysis summary (attached) labeled *Development Access*. Also included in the updated cost is the cost of a parking garage for ultimate airport development. Because these portions of the project are not strictly necessary for access to the airport, they are shown as distinct items to the total program cost presented in the summary tables.

The cost review resulted in significant revisions to some of the costs for the alternatives included in the reasonable alternatives evaluation. The construction cost is used as the basis for the analysis of the economic impacts on the community. It is appropriate to utilize these costs for comparative evaluations of the different alternatives and helping

determine the recommended alternative. These costs are not accurate enough to utilize for budgeting purposes. In order to develop costs for budgeting purposes, additional information, including geotechnical, bathymetric and topographical information must be gathered and evaluated to establish with a higher degree of certainty the design concepts and quantities.

The following is a summary of the comparative costs for the Gravina Access Project reasonable alternatives. A detailed breakdown of construction quantities (based on preliminary engineering studies) and cost estimates (broken into the airport access and development access categories) can be found in the attachment. These costs have been combined by alternative for this summary. Also attached is a detailed breakdown of the operation and maintenance costs for each alternative. It also indicates the assumptions made about the types of periodic major maintenance or rehabilitation needed during the life of the project, and costs associated with that work.

| Alternative | Total Estimated Project Cost (\$ million) |
|-------------|---|
| C3(a2)-200 | 186 |
| C3(b)-120 | 178 |
| C4(a2)-200 | 196 |
| D1-120 | 127 |
| F3(2)-200 | 188 |
| G2 | 69 |
| G3 | 67 |
| G4 | 61 |

Note: Detailed breakdown is included in Attachment.

The alternatives can be grouped into three basic groups; high bridge, (C3, C4, F3) low bridge, (D1, C3(b)) and ferries (G2, G3, G4). The magnitude of cost difference is useful in choosing between the alternatives. It should be noted additional fieldwork and preliminary design must be completed to develop an opinion of cost that is of adequate accuracy to be used for budgeting purposes.

5.0 Life Cycle Cost Comparison

For further comparison purposes, life cycle costs were prepared for comparative purposes. Life cycle cost analyses are often useful to evaluate the total cost of the project over its useful life, taking into consideration both program development costs as well as annual operation and maintenance costs, major rehabilitation required during the life of the project, and the value of money. The life cycle cost for this project used guidelines provided in Federal Highway Administration – Office of Management and Budget (OMB) Circular No. A-94, October 29, 1992 and subsequent appendices. A summary of the assumptions used in the analysis included:

- All pavements would have to be overlaid at 20 year intervals
- Mechanical/electrical equipment of ferries would have to be replaced every 25 years
- Ferry terminal maintenance would be required every 10 years
- The useful life of a bridge is 75 years
- The useful life of the parking structure is 75 years
- The useful life of a ferry is 50 years
- Long term inflation rate is 2%
- Long term interest rate is 6.3%

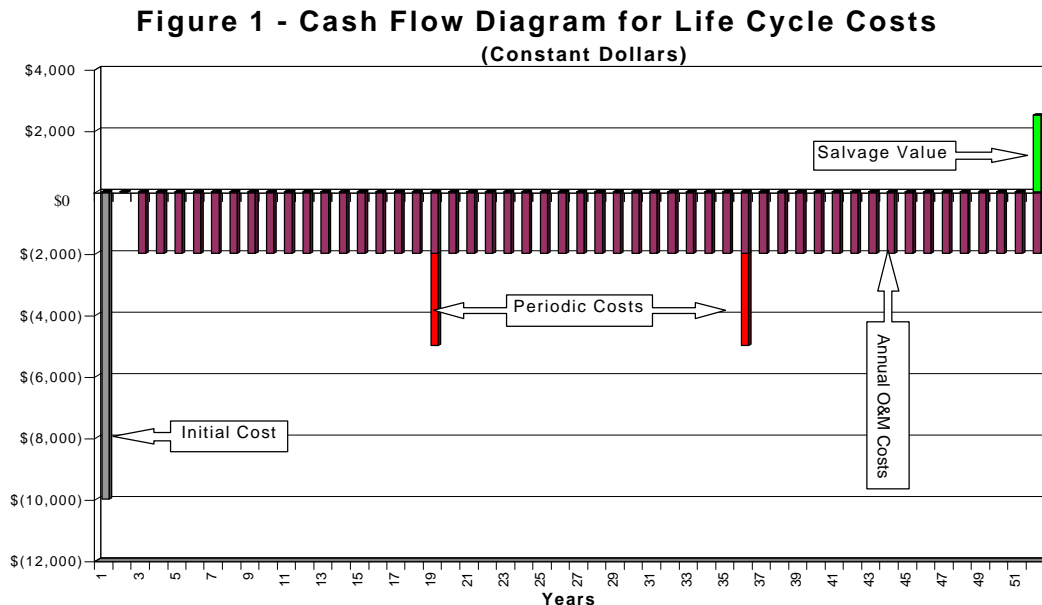
Annual costs of operation and maintenance were based on evaluation of comparable systems, such as the existing ferry system and maintenance of large concrete bridges. Based on the above assumptions, the following comparisons include life cycle costs of the alternatives.

5.1 Definition of Life Cycle Cost

Life Cycle Cost is defined as the overall estimated cost of a single project alternative over the life of the project or a defined period. All of the income and expenses associated with the project that occur during its life are used to calculate the life cycle cost. Comparing their life cycle costs is a common way to evaluate different alternatives. Life Cycle Costs will be compared here using Net Present Value (NPV). For the Gravina Access Project, present worth is used to compare the life cycle costs of different alternatives.

5.2 Cash Flow

A cash flow diagram is often used to show how money is spent and earned. A simple cash flow diagram is shown in Figure 1. In this figure, each vertical bar represents the net expense or income for a single year. A vertical bar below the \$0-line indicates that



money is spent on the project and a bar above the \$0-line indicates that money is earned or gained. The cash flow includes initial costs, annual operating and maintenance (O&M) costs, periodic maintenance costs, and salvage values. “**Constant dollars**” are used in this diagram, which means that the income and expenses do not include the effects of inflation. Also, annual operating and maintenance costs actually occur throughout the year, but in this cash flow diagram they are shown as a lump sum at the end of the year. A cash flow diagram similar to this was used for Gravina Access Project alternatives. Using a car as an example, the following shows the components of a cash flow diagram.

Car Example 1: The cash flow diagram for an automobile paid in full on the day of purchase includes the following costs:

- The *initial cost* is the price that is paid for the vehicle and any taxes and fees paid at the time of purchase.
- *Annual operating and maintenance costs* include the annual cost of fuel, oil, fluids, insurance and other costs that occur every year.
- *Periodic maintenance costs* include new tires, new brakes, new batteries and other maintenance costs that occur throughout the life of the vehicle to keep the vehicle in service.
- The *salvage value* is the price that the vehicle is sold for at the end of its useful life.

Time Value of Money

When dealing with money or finances for a project over a long period, the time value of money must be considered. The value of money changes over time due to inflation and interest rates.

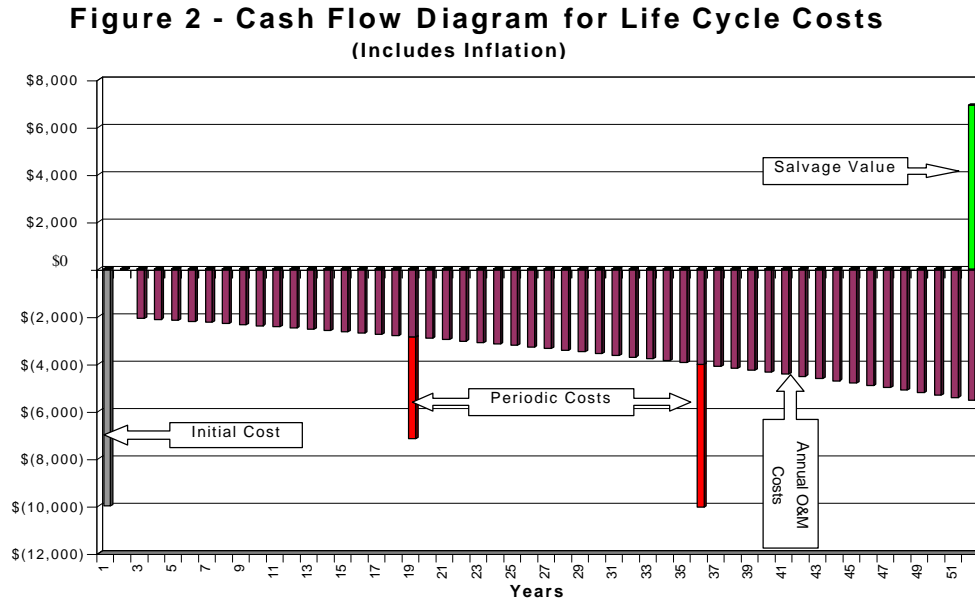
Inflation decreases the value of money over time by increasing the cost of goods and services. When we say, “A dollar today isn’t worth what it used to be,” we are usually referring to the loss in a dollar’s value due to inflation. If we have \$100 dollars to buy an item today, the same item 50 years ago would have cost \$37, assuming a 2% inflation rate. Similarly, an item that costs \$100 in the Year 2000 will cost about \$270 in the Year 2050 at a 2% inflation rate.

Interest accrued over time increases the value of money. Another way to think about this is that you can “make money” with the money you have in hand today. For example, suppose you put \$10 into a bank account that pays 6.3% annual interest. If you leave the account alone and let that original \$10 and the interest accumulate, it will be worth \$212 in 50 years.

Because the value of money changes over time, it is very important to specify the year that the dollars are stated in. In the previous example, the \$100 price for the item is stated in Year 2000 dollars. When inflation is used to calculate the future cost, the \$270 price is in Year 2050 dollars.

5.3 Present Worth

Inflation and interest rates are combined to determine the *present worth* of an item. First, we assume that the price of the item purchased today is known. Second, an inflation rate is used to determine the future cost. The interest rate is used to determine how much money would have to be set aside today to pay for the item in the future. Together these factors determine the present worth of the item. Figure 2 shows the simplified cash flow diagram from Figure 1, but with the effects of inflation.



The equation for calculating the future cost for an item is:

$$\text{Future Cost} = \text{Present Cost} \times \underbrace{(1 + \text{inflation rate})^t}_{\text{Inflation Factor}} \quad \text{where } t = \text{number of years.}$$

The present worth of a future transaction is:

$$\text{Present Worth} = \text{Future Cost} \times \underbrace{(1 + \text{interest rate})^{-t}}_{\text{Discount Factor}}$$

Car Example 2: You decide that you want to purchase a new vehicle in 5 years. The 2000 model is currently selling for \$20,000 (in Year 2000 dollars). With 2% inflation you can assume that when you buy the new 2005 model it is going to cost \$22,082 (in Year 2005 dollars). Today, if you deposit \$16,269 (Year 2000 dollars) in an account that generates 6.3% interest and the account balance is allowed to accumulate, you would have

enough money for the new vehicle in 5 years. \$16,269 (in Year 2000 dollars) is the present worth of the 2005 model.

The associated calculations are:

$$\text{Future Cost} = \$20,000 \times (1 + 0.02)^5 = \$22,082$$

$$\text{Present Worth} = \$22,082 \times (1 + 0.063)^{-5} = \$16,269$$

5.4 Salvage Value

The salvage value is the value of an item at the end of the life span. The straight-line method of depreciation is the method that is used to determine the salvage value for this project. This method states the value of an item decreases in value at a constant rate until it reaches the end of its life span, at which point in time the value of the item is zero. Hence, when the item is halfway through the life span, the item is worth half of its original price. When the item is 75% through its life, its salvage value is 25% of its original price.

$$\text{Salvage Value} = \text{Cost of Item} \times (1 - n / \text{Life of Item})$$

where n = the time at which the salvage value is calculated.

Car Example 3: An item is purchased for \$1,000. It has a life span of 50 years and zero salvage value at the end of its life. If you sold the item in 20 years the salvage value of the item would be \$600.

Calculations:

$$\text{Salvage Value in 20 years} = \$1,000 \times (1 - 20 / 50) = \$600$$

In the example above, a salvage value is calculated for an item that is purchased and sold. There is also salvage value associated with periodic maintenance. An item is worth more if it is maintained. The value of the maintenance performed is greater immediately after it is maintained and the value diminishes as you get closer to the next required maintenance. The straight-line method of depreciation described above is also used to determine the salvage value of periodic maintenance.

Car Example 4: You own an old car in desperate need of a new engine. The cost of purchasing and installing a new engine is \$5,000. The engine must be replaced every 15 years. If the car is sold 5 years after the engine is replaced, the salvage value the new engine adds to the value of the car is \$3,333.

Calculations:

$$\text{Periodic Maintenance Cost} = \$5,000$$

$$\text{Salvage Value in 5 years} = \$5,000 \times (1 - 5/15) = \$3,333$$

6.0 Calculating Life Cycle Costs for Gravina Access Project

Life cycle costs for the Gravina Access Project alternatives were determined using the present worth value for the Life Cycle Cost analysis. Because construction is scheduled to start in the Year 2003, the life cycle costs for all alternatives were computed in Year 2003 dollars.

The calculations were performed using a cash flow diagram in constant 2003. For example, repaving of the roadways is planned to occur once every 20 years at a cost of \$13 per square meter (2003 dollars). This means that at Years 2026, 2046, 2066, etc., an expense of \$13 per square meter will be included as a project expense. Present worth is calculated using a nominal interest rate of 6.3% and an inflation rate of 2% for all alternatives.¹

| Alternative | Total Estimated Project Cost (\$ million) | Total Life Cycle Cost (\$ million) | Annual Average O&M Cost* (\$ million) |
|-------------|---|------------------------------------|---------------------------------------|
| A1 | 268.8 | 261.1 | 0.18 |
| B1 | 384.9 | 372.4 | 0.17 |
| C1 | 242.0 | 235.0 | 0.15 |
| C2 | 205.3 | 199.8 | 0.15 |
| C3 | 145.8 | 142.7 | 0.16 |
| C4 | 152.5 | 149.1 | 0.15 |
| D1 | 89.2 | 87.8 | 0.12 |
| D2 | 248.7 | 246.6 | 0.44 |
| E1 | 262.6 | 311.1 | 3.03 |
| E2 | 350.2 | 397.2 | 3.12 |
| F1 | 205.8 | 201.2 | 0.21 |
| F1 (cable) | 210.9 | 207.9 | 0.30 |
| F2 | 553.2 | 594.6 | 3.26 |
| F3 | 181.6 | 177.9 | 0.21 |
| G1 | 71.5 | 155.8 | 4.99 |
| G2 | 66.2 | 150.4 | 4.97 |
| G3 | 47.1 | 131.9 | 4.95 |
| G4 | 42.7 | 127.6 | 4.95 |

*Includes annual O&M cost as well as annual contribution to fund periodic maintenance rehabilitation costs

¹ Federal Highway Administration – Office of management and Budget (OMB) Circular No. A-94, Appendix C. January 2000.

The same evaluation period was used for all alternatives so that the comparison between alternatives is fair. The project period used for this evaluation is 20 years. Hence, for the Gravina Access Project, the 20-year life span starts at the beginning of Year 2006 and terminates at the end of 2025.

| Alternative | Total Estimate Project Cost (\$ million) | Total Life Cycle Costs (\$ million) | Annual Average O&M Costs* (\$ million) |
|-------------|--|---|---|
| C3(a2)-200 | 186 | 156 | 0.18 |
| C3(b)-120 | 178 | 151 | 0.18 |
| C4(a2)-200 | 196 | 168 | 0.18 |
| D1-120 | 127 | 110 | 0.16 |
| F3(2)-200 | 188 | 160 | 0.27 |
| G2 | 69 | 108 | 4.50 |
| G3 | 67 | 106 | 4.99 |
| G4 | 61 | 100 | 4.46 |

* Includes annual O&M cost as well as annual contribution to fund periodic maintenance rehabilitation costs

As is commonly done in life cycle cost studies, the salvage value at the end of the project life span for structures such as bridges and tunnels is established using a straight-line method of depreciation, based on the life of the structure.

Initial Cost of Construction: Construction is expected to begin in 2003 and to last for approximately three years. The initial cost of construction and project development was distributed over the construction period and occurs at the beginning of the year (2003 to 2005). Construction is expected to be complete at the end of 2005.

Annual Operating and Maintenance Costs: Annual costs are lumped at the end of the year beginning at the end of 2006 (beginning of 2007) and the final cost occurs at the end of 2025 (beginning of 2026).

Periodic Maintenance Costs: Periodic maintenance costs include repaving, mechanical/electrical equipment replacement, and terminal maintenance. Each of these maintenance items occurs at its respective frequency *f*. The first cost occurs *f* years after the beginning of 2006. Salvage value of the periodic maintenance costs after the 20th year is determined using the straight-line method of depreciation.

Structure Options: The proposed bridges have an expected life of 75 years. Salvage value for bridges after the 20th year is determined using the straight-line method of depreciation.

Ferry Options: It was assumed that with proper maintenance, the useful life of the proposed ferry vessels is 50 years. It was assumed that the ferry vessel has zero salvage value at the end of its 50-year life. It was assumed that one of the existing ferry vessels will be replaced at the beginning of the project life in 2006 and that the other existing ferry vessel will be replaced at the 10th year of the project life. The salvage value of all the ferry vessels at the end of the 20-year project life was calculated using the straight-line method of depreciation.

6.1 Summary of Alternatives and their Cash Flow Components (in constant Year 2003 dollars)

Bridge alternatives

- Initial Cost of Construction
- Annual Operating and Maintenance Costs
- Periodic Maintenance Costs:
 - Repaving
- Salvage Value
 - Value of periodic maintenance costs after the 20th year.
 - Value of bridges after the 20th year

Moveable Bridge alternatives

- Initial Cost of Construction
- Annual Operating and Maintenance Costs
- Periodic Maintenance Costs:
 - Repaving
 - Electrical equipment replacement on moveable bridges
- Salvage Value
 - Value of periodic maintenance costs after the 20th year.
 - Value of bridges after the 20th year

Ferry alternatives

- Initial Cost of Construction
 - Construction
 - Ferry system acquisition
- Annual Operating and Maintenance Costs
- Periodic Maintenance Costs:
 - Repaving
 - Marine terminal fender/dolphin replacement cost
 - Ferry main propulsion and generator replacement costs
 - Existing ferry replacement at the 10th year
 - Salvage value
 - Value of periodic maintenance costs after the 20th year.
 - Value of vessel after the 20th year.

ATTACHMENT
Cost Estimates

| | | | | | | |
|---|--|-----------------|---------------------------------------|------------------------------------|--------------|----------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | C3(a2) - <i>Airport Access</i> | | | |
| | | | 200' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 3 |
| Width Clearing & Grubbing (m) - Wc = <u>35</u> | | | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = <u>1.50</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = <u>4.30</u> | | | <u>11+500</u> | <u>11+768</u> | <u>268</u> | |
| Unit Weight Borrow (Megagram/m) - Ws = <u>23.30</u> | | | <u>13+503</u> | <u>14+372</u> | <u>869</u> | |
| Length Culvert Crossings (m) - Lc = <u>40</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width Creek Crossing Bridge (m) - Wbr = <u>14.6</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width of Right of Way (m) - Wr = <u>50</u> | | | Creek Crossing Bridges (m) = | | <u>0</u> | |
| Contingency Line O (%) - Co = <u>15.0%</u> | | | Length Road - Bridges (m) = | | 1137 | |
| CONCEPT COST ESTIMATE | | | | # Bridges = <u>1</u> | | |
| | | | | #Tunnels = <u>0</u> | | |
| | | | | # Culvert Crossings = <u>9</u> | | |
| | | | | #Bridge Creek Crossings = <u>0</u> | | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 4 | \$44,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | <u>135000</u> | \$1,755,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 26493 | \$318,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 1706 | \$77,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 4890 | \$117,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 103 | \$20,600 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | <u>\$2,133</u> | <u>25,331</u> | \$54,031,000 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$9,027,638 | <u>1</u> | \$9,028,000 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | <u>6,910</u> | \$11,160,000 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | <u>12,491</u> | \$13,440,000 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | <u>0</u> | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 0 | \$0 | 15.0% |
| b. Airport Access | | METER | \$100 | 1137 | \$114,000 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | <u>1</u> | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | <u>1</u> | \$182,000 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | <u>1</u> | \$121,000 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$3,734,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. <u>Removal Items</u> (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$224,040 | <u>1</u> | \$224,000 | |
| 2. <u>Other Excavation and Embankment Construction</u> (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$112,020 | <u>1</u> | \$112,000 | |
| 3. <u>Miscellaneous Construction Items</u> (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$933,500 | <u>1</u> | \$934,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$5,004,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$106,473,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$10,647,300 | 1 | \$10,647,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$117,120,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$17,568,000 | 1 | \$17,568,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$2,342,400 | 1 | \$2,000,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$9,369,600 | 1 | \$9,370,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$12,883,200 | 1 | \$12,883,000 | |
| S RIGHT OF WAY | | HECTARE | <u>\$230,000</u> | <u>4.4</u> | \$1,012,000 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$160,000,000 |

| | | | | | | |
|---|--|-----------------|---|------------------------------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | C3(a2) - <i>Development Access</i> | | | |
| | | | 200' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 4 |
| Width Clearing & Grubbing (m) - Wc = <u>35</u> | | | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = <u>1.50</u> | | | <u>10+000</u> | <u>11+500</u> | <u>1500</u> | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = <u>4.30</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Unit Weight Borrow (Megagram/m) - Ws = <u>23.30</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Length Culvert Crossings (m) - Lc = <u>40</u> | | | <u>15+325</u> | <u>19+000</u> | <u>3675</u> | |
| Width Creek Crossing Bridge (m) - Wbr = <u>14.6</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width of Right of Way (m) - Wr = <u>50</u> | | | Creek Crossing Bridges (m) = | | <u>0</u> | |
| Contingency Line O (%) - Co = <u>15.0%</u> | | | Length Road - Bridges (m) = | | <u>5175</u> | |
| CONCEPT COST ESTIMATE | | | | # Bridges = <u>0</u> | | |
| | | | | #Tunnels = <u>0</u> | | |
| | | | | # Culvert Crossings = <u>0</u> | | |
| | | | | #Bridge Creek Crossings = <u>0</u> | | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 18.2 | \$200,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | <u>222000</u> | \$2,886,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 120578 | \$1,447,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 7763 | \$349,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 22253 | \$534,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 466 | \$93,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | <u>0</u> | \$0 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | <u>0</u> | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | <u>0</u> | \$0 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | <u>0</u> | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | <u>0</u> | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 5175 | \$518,000 | 15.0% |
| b. Airport Access | | METER | \$100 | <u>0</u> | \$0 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | <u>1</u> | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | <u>0</u> | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | <u>0</u> | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$7,468,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. <u>Removal Items</u> (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$448,080 | <u>1</u> | \$448,000 | |
| 2. <u>Other Excavation and Embankment Construction</u> (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$224,040 | <u>1</u> | \$224,000 | |
| 3. <u>Miscellaneous Construction Items</u> (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,867,000 | <u>1</u> | \$1,867,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$10,007,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$10,007,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$1,000,700 | 1 | \$1,001,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$11,008,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$1,651,200 | 1 | \$1,651,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$220,160 | 1 | \$220,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$880,640 | 1 | \$881,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$1,651,200 | 1 | \$1,651,000 | |
| S RIGHT OF WAY | | HECTARE | <u>\$0</u> | <u>25.9</u> | \$0 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$15,000,000 |

| | | | | | | |
|---|--|-----------------|--------------------------------------|-----------------|--------------|----------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | C3(b) - <i>Airport Access</i> | | | |
| | | | 120' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 5 |
| Width Clearing & Grubbing (m) - Wc = <u>35</u> | | | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = <u>1.50</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = <u>4.30</u> | | | <u>11+500</u> | <u>12+239</u> | <u>739</u> | |
| Unit Weight Borrow (Megagram/m) - Ws = <u>23.30</u> | | | <u>13+536</u> | <u>14+361</u> | <u>825</u> | |
| Length Culvert Crossings (m) - Lc = <u>40</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width Creek Crossing Bridge (m) - Wbr = <u>14.6</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width of Right of Way (m) - Wr = <u>50</u> | | | Creek Crossing Bridges (m) = | <u>200</u> | | |
| Contingency Line O (%) - Co = <u>15.0%</u> | | | Length Road - Bridges (m) = | <u>1364</u> | | |
| CONCEPT COST ESTIMATE | | | # Bridges = <u>1</u> | | | |
| | | | #Tunnels = <u>0</u> | | | |
| | | | # Culvert Crossings = <u>9</u> | | | |
| | | | #Bridge Creek Crossings = <u>0</u> | | | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 4.8 | \$53,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | <u>97000</u> | \$1,261,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 31782 | \$381,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 2046 | \$92,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 5866 | \$141,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 123 | \$24,600 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | <u>\$2,276</u> | <u>18,936</u> | \$43,098,000 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$16,410,000 | <u>1</u> | \$16,410,000 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | <u>7,756</u> | \$12,526,000 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | <u>5,680</u> | \$6,112,000 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | <u>0</u> | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 2920 | \$2,832,000 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 0 | \$0 | 15.0% |
| b. Airport Access | | METER | \$100 | 1364 | \$136,000 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | <u>1</u> | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | <u>0</u> | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | <u>1</u> | \$121,000 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$5,896,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. <u>Removal Items</u> (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$353,760 | <u>1</u> | \$354,000 | |
| 2. <u>Other Excavation and Embankment Construction</u> (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$176,880 | <u>1</u> | \$177,000 | |
| 3. <u>Miscellaneous Construction Items</u> (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,474,000 | <u>1</u> | \$1,474,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$7,901,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$99,120,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$9,912,000 | 1 | \$9,912,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$109,032,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$16,354,800 | 1 | \$16,355,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$2,180,640 | 1 | \$2,000,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$8,722,560 | 1 | \$8,723,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$16,354,800 | 1 | \$16,355,000 | |
| S RIGHT OF WAY | | HECTARE | <u>\$246,000</u> | <u>4.1</u> | \$1,009,000 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$153,000,000 |

| | | | | | | |
|--|--|-----------------|-----------------------------------|---------------------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | C3(b) - Development Access | | | |
| | | | 120' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 6 |
| Width Clearing & Grubbing (m) - Wc = | | 35 | | Roadway (m) = | | |
| Unit Weight Asphalt (Megagram/m) - Wa = | | 1.50 | 10+000 | 11+500 | 1500 | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = | | 4.30 | 0+000 | 0+000 | 0 | |
| Unit Weight Borrow (Megagram/m) - Ws = | | 23.30 | 0+000 | 0+000 | 0 | |
| Length Culvert Crossings (m) - Lc = | | 40 | 15+325 | 19+000 | 3675 | |
| Width Creek Crossing Bridge (m) - Wbr = | | 14.6 | 0+000 | 0+000 | 0 | |
| Width of Right of Way (m) - Wr = | | 50 | Creek Crossing Bridges (m) = | | 0 | |
| Contingency Line O (%) - Co = | | 15.0% | Length Road - Bridges (m) = | | 5175 | |
| CONCEPT COST ESTIMATE | | | | # Bridges = | 0 | |
| | | | | #Tunnels = | 0 | |
| | | | | # Culvert Crossings = | 9 | |
| | | | | #Bridge Creek Crossings = | 0 | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 18.2 | \$200,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | 191000 | \$2,483,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 120578 | \$1,447,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 7763 | \$349,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 22253 | \$534,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 466 | \$93,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 5175 | \$518,000 | 15.0% |
| b. Airport Access | | METER | \$100 | 0 | \$0 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$6,972,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$418,320 | 1 | \$418,000 | |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$209,160 | 1 | \$209,000 | |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,743,000 | 1 | \$1,743,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$9,342,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$9,342,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$934,200 | 1 | \$934,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$10,276,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$1,541,400 | 1 | \$1,541,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$205,520 | 1 | \$206,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$822,080 | 1 | \$822,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$1,541,400 | 1 | \$1,541,000 | |
| S RIGHT OF WAY | | HECTARE | \$0 | 25.9 | \$0 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$14,000,000 |

| | | | | | | |
|--|--|-----------------|--------------------------------|---------------------------|--------------|----------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | C4(a2) - Airport Access | | | |
| | | | 200' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 9 |
| Width Clearing & Grubbing (m) - Wc = | | 35 | | Roadway (m) = | | |
| Unit Weight Asphalt (Megagram/m) - Wa = | | 1.50 | 0+000 | 0+000 | 0 | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = | | 4.30 | 11+500 | 11+768 | 268 | |
| Unit Weight Borrow (Megagram/m) - Ws = | | 23.30 | 13+288 | 14+133 | 845 | |
| Length Culvert Crossings (m) - Lc = | | 40 | 0+000 | 0+000 | 0 | |
| Width Creek Crossing Bridge (m) - Wbr = | | 14.6 | 0+000 | 0+000 | 0 | |
| Width of Right of Way (m) - Wr = | | 50 | Creek Crossing Bridges (m) = | | 0 | |
| Contingency Line O (%) - Co = | | 15.0% | Length Road - Bridges (m) = | | 1113 | |
| CONCEPT COST ESTIMATE | | | | # Bridges = | 1 | |
| | | | | #Tunnels = | 0 | |
| | | | | # Culvert Crossings = | 9 | |
| | | | | #Bridge Creek Crossings = | 0 | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 3.9 | \$43,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | 541000 | \$7,033,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 25933 | \$311,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 1670 | \$75,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 4786 | \$115,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 101 | \$20,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | \$2,134 | 22,192 | \$47,358,000 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | 1 | \$14,700,000 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | 6,740 | \$10,885,000 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | 9,690 | \$10,426,000 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 0 | \$0 | 15.0% |
| b. Airport Access | | METER | \$100 | 1113 | \$111,000 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | 1 | \$182,000 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$10,181,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$610,860 | 1 | \$611,000 | |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$305,430 | 1 | \$305,000 | |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$2,545,250 | 1 | \$2,545,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$13,642,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$110,750,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$11,075,000 | 1 | \$11,075,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$121,825,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$18,273,750 | 1 | \$18,274,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$2,436,500 | 1 | \$2,000,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$9,746,000 | 1 | \$9,746,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$18,273,750 | 1 | \$18,274,000 | |
| S RIGHT OF WAY | | HECTARE | \$241,000 | 4.2 | \$1,012,000 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$171,000,000 |

| | | | | | | |
|---|--|-----------------|---|------------------------------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | C4(a2) - <i>Development Access</i> | | | |
| | | | 200' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 10 |
| Width Clearing & Grubbing (m) - Wc = <u>35</u> | | | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = <u>1.50</u> | | | <u>10+000</u> | <u>11+500</u> | <u>1500</u> | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = <u>4.30</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Unit Weight Borrow (Megagram/m) - Ws = <u>23.30</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Length Culvert Crossings (m) - Lc = <u>40</u> | | | <u>15+325</u> | <u>19+000</u> | <u>3675</u> | |
| Width Creek Crossing Bridge (m) - Wbr = <u>14.6</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width of Right of Way (m) - Wr = <u>50</u> | | | Creek Crossing Bridges (m) = | | <u>0</u> | |
| Contingency Line O (%) - Co = <u>15.0%</u> | | | Length Road - Bridges (m) = | | <u>5175</u> | |
| CONCEPT COST ESTIMATE | | | | # Bridges = <u>0</u> | | |
| | | | | #Tunnels = <u>0</u> | | |
| | | | | # Culvert Crossings = <u>0</u> | | |
| | | | | #Bridge Creek Crossings = <u>0</u> | | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 18.2 | \$200,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | <u>191000</u> | \$2,483,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 120578 | \$1,447,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 7763 | \$349,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 22253 | \$534,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 466 | \$93,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | <u>0</u> | \$0 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | <u>0</u> | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | <u>0</u> | \$0 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | <u>0</u> | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | <u>0</u> | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 5175 | \$518,000 | 15.0% |
| b. Airport Access | | METER | \$100 | <u>0</u> | \$0 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | <u>1</u> | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | <u>0</u> | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | <u>0</u> | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$6,972,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. <u>Removal Items</u> (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$418,320 | <u>1</u> | \$418,000 | |
| 2. <u>Other Excavation and Embankment Construction</u> (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$209,160 | <u>1</u> | \$209,000 | |
| 3. <u>Miscellaneous Construction Items</u> (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,743,000 | <u>1</u> | \$1,743,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$9,342,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$9,342,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$934,200 | 1 | \$934,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$10,276,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$1,541,400 | 1 | \$1,541,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$205,520 | 1 | \$206,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$822,080 | 1 | \$822,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$1,541,400 | 1 | \$1,541,000 | |
| S RIGHT OF WAY | | HECTARE | <u>\$0</u> | <u>25.9</u> | \$0 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$14,000,000 |

| | | | | | | |
|--|--|-----------------|-----------------------------------|---------------------------|--------------|----------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | D1 - <i>Airport Access</i> | | | |
| | | | 120' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 11 |
| Width Clearing & Grubbing (m) - Wc = | | 35 | | Roadway (m) = | | |
| Unit Weight Asphalt (Megagram/m) - Wa = | | 1.50 | 0+000 | 0+000 | 0 | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = | | 4.30 | 11+500 | 11+602 | 102 | |
| Unit Weight Borrow (Megagram/m) - Ws = | | 23.30 | 12+582 | 13+155 | 573 | |
| Length Culvert Crossings (m) - Lc = | | 40 | 0+000 | 0+000 | 0 | |
| Width Creek Crossing Bridge (m) - Wbr = | | 14.6 | 0+000 | 0+000 | 0 | |
| Width of Right of Way (m) - Wr = | | 50 | Creek Crossing Bridges (m) = | | 0 | |
| Contingency Line O (%) - Co = | | 15.0% | Length Road - Bridges (m) = | | 675 | |
| CONCEPT COST ESTIMATE | | | | # Bridges = | 1 | |
| | | | | #Tunnels = | 0 | |
| | | | | # Culvert Crossings = | 9 | |
| | | | | #Bridge Creek Crossings = | 0 | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 2.4 | \$26,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | 333000 | \$4,329,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 15728 | \$189,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 1013 | \$46,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 2903 | \$70,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 61 | \$12,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | \$2,025 | 14,308 | \$28,974,000 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$10,260,000 | 1 | \$10,260,000 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | 9,072 | \$9,761,000 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 0 | \$0 | 15.0% |
| b. Airport Access | | METER | \$100 | 675 | \$68,000 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | 1 | \$182,000 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$6,514,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$390,840 | 1 | \$391,000 | |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$195,420 | 1 | \$195,000 | |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,628,500 | 1 | \$1,629,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$8,729,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$65,626,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$6,562,600 | 1 | \$6,563,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$72,189,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$10,828,350 | 1 | \$10,828,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$1,443,780 | 1 | \$1,444,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$5,775,120 | 1 | \$5,775,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$10,828,350 | 1 | \$10,828,000 | |
| S RIGHT OF WAY | | HECTARE | \$340,000 | 2.9 | \$986,000 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$102,000,000 |

| | | | | | | |
|--|--|-----------------|--------------------------------|---------------------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | D1 - Development Access | | | |
| | | | 120' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 12 |
| Width Clearing & Grubbing (m) - Wc = | | 35 | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = | | 1.50 | 10+000 | 11+500 | 1500 | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = | | 4.30 | 0+000 | 0+000 | 0 | |
| Unit Weight Borrow (Megagram/m) - Ws = | | 23.30 | 0+000 | 0+000 | 0 | |
| Length Culvert Crossings (m) - Lc = | | 40 | 15+325 | 19+000 | 3675 | |
| Width Creek Crossing Bridge (m) - Wbr = | | 14.6 | 0+000 | 0+000 | 0 | |
| Width of Right of Way (m) - Wr = | | 50 | Creek Crossing Bridges (m) = | | 0 | |
| Contingency Line O (%) - Co = | | 15.0% | Length Road - Bridges (m) = | | 5175 | |
| CONCEPT COST ESTIMATE | | | | # Bridges = | 0 | |
| | | | | #Tunnels = | 0 | |
| | | | | # Culvert Crossings = | 0 | |
| | | | | #Bridge Creek Crossings = | 0 | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 18.2 | \$200,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | 191000 | \$2,483,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 120578 | \$1,447,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 7763 | \$349,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 22253 | \$534,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 466 | \$93,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 5175 | \$518,000 | 15.0% |
| b. Airport Access | | METER | \$100 | 0 | \$0 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$6,972,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$418,320 | 1 | \$418,000 | |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$209,160 | 1 | \$209,000 | |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,743,000 | 1 | \$1,743,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$9,342,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$9,342,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$934,200 | 1 | \$934,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$10,276,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$1,541,400 | 1 | \$1,541,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$205,520 | 1 | \$206,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$822,080 | 1 | \$822,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$1,541,400 | 1 | \$1,541,000 | |
| S RIGHT OF WAY | | HECTARE | \$0 | 25.9 | \$0 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$14,000,000 |

| GRAVINA ACCESS PROJECT | | OPTION : | | F3(2) - <i>Airport Access</i> | | | |
|--|--|-----------------|------------------------------|-------------------------------|--------------|-------|---------------|
| | | | 200' BRIDGE CLEARANCE | | | | |
| | | 1/15/2002 14:58 | | | | | Page 15 |
| Width Clearing & Grubbing (m) - Wc = <u>35</u> | | | | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = <u>1.50</u> | | | <u>10+000</u> | <u>10+896</u> | 896 | | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = <u>4.30</u> | | | <u>11+874</u> | <u>13+119</u> | 1245 | | |
| Unit Weight Borrow (Megagram/m) - Ws = <u>23.30</u> | | | <u>11+413</u> | <u>15+325</u> | 3912 | | |
| Length Culvert Crossings (m) - Lc = <u>40</u> | | | <u>10+000</u> | <u>11+500</u> | 1500 | | |
| Width Creek Crossing Bridge (m) - Wbr = <u>14.6</u> | | | <u>0+000</u> | <u>0+000</u> | 0 | | |
| Width of Right of Way (m) - Wrr = <u>50</u> | | | Creek Crossing Bridges (m) = | | <u>0</u> | | |
| Contingency Line O (%) - Co = <u>15.0%</u> | | | Length Road - Bridges (m) = | | 7553 | | |
| CONCEPT COST ESTIMATE | | | | # Bridges = | <u>2</u> | | |
| | | | | #Tunnels = | <u>0</u> | | |
| | | | | # Culvert Crossings = | <u>15</u> | | |
| | | | | #Bridge Creek Crossings = | <u>0</u> | | |
| | | | | | | | TOTAL |
| | | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| | | | | | | | ITEM COST |
| A EARTHWORK | | | | | | | |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 26.5 | \$292,000 | 5.0% | \$307,000 |
| 2. Rock Excavation | | CUBIC METER | \$13 | <u>249000</u> | \$3,237,000 | 25.0% | \$4,046,000 |
| 3. Borrow | | MEGAGRAM | \$12 | 175985 | \$2,112,000 | 10.0% | \$2,323,000 |
| B SURFACING / PAVING | | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 11330 | \$510,000 | 2.5% | \$523,000 |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 32478 | \$779,000 | 5.0% | \$818,000 |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 680 | \$136,000 | 1.0% | \$137,000 |
| C STRUCTURES | | | | | | | |
| 1. Bridges (See above for number) | | | | | | | |
| a. Superstructure. | | SQUARE METER | <u>\$1,987</u> | <u>24,163</u> | \$48,012,000 | 10.0% | \$52,813,000 |
| b. Substructure | | | | | | | |
| i. Deep Water | | LUMP SUM | \$10,260,000 | <u>1</u> | \$10,260,000 | 25.0% | \$12,825,000 |
| ii. Shallow Water | | SQUARE METER | \$1,615 | <u>6,825</u> | \$11,022,000 | 25.0% | \$13,778,000 |
| iii. Over Land | | SQUARE METER | \$1,076 | <u>12,164</u> | \$13,088,000 | 25.0% | \$16,360,000 |
| 2. Moveable Bridge | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% | \$0 |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | <u>0</u> | \$0 | 0.0% | \$0 |
| D DRAINAGE | | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 600 | \$300,000 | 15.0% | \$345,000 |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% | \$0 |
| 3. Other Drainage | | | | | | | |
| a. Development Access | | METER | \$100 | 0 | \$0 | 15.0% | \$0 |
| b. Airport Access | | METER | \$100 | 7553 | \$755,000 | 15.0% | \$868,000 |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | <u>1</u> | \$250,000 | 0.0% | \$250,000 |
| F MISCELLANEOUS ROADS | | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | <u>0</u> | \$0 | 10.0% | \$0 |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | <u>0</u> | \$0 | 10.0% | \$0 |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | | \$9,617,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$577,020 | <u>1</u> | \$577,000 | | \$577,000 |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$288,510 | <u>1</u> | \$289,000 | | \$289,000 |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$2,404,250 | <u>1</u> | \$2,404,000 | | \$2,404,000 |
| I SUB TOTAL (Lines G through H) | | | | | | | \$12,887,000 |
| J FERRY TERMINAL | | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% | \$0 |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% | \$0 |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | | \$108,663,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$10,866,300 | 1 | \$10,866,000 | | \$10,866,000 |
| M Ferry System Acquisition Cost | | LUMP SUM | <u>\$0</u> | <u>0</u> | \$0 | 0.0% | \$0 |
| N SUB TOTAL (Lines K through M) | | | | | | | \$119,529,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$17,929,350 | 1 | \$17,929,000 | | \$17,929,000 |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$2,390,580 | 1 | \$2,000,000 | | \$2,000,000 |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$9,562,320 | 1 | \$9,562,000 | | \$9,562,000 |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$17,929,350 | 1 | \$17,929,000 | | \$17,929,000 |
| S RIGHT OF WAY | | HECTARE | <u>\$40,000</u> | <u>10</u> | \$400,000 | | \$400,000 |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | | \$167,000,000 |

| | | | | | | |
|---|--|-----------------|---|------------------------------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | F3(2) - Development Access | | | |
| | | | 200' BRIDGE CLEARANCE | | | |
| | | 1/15/2002 14:58 | | | | Page 16 |
| Width Clearing & Grubbing (m) - Wc = <u>35</u> | | | Roadway (m) = | | | |
| Unit Weight Asphalt (Megagram/m) - Wa = <u>1.50</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Unit Weight Aggregate Base Course (Megagram/m) - Wb = <u>4.30</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Unit Weight Borrow (Megagram/m) - Ws = <u>23.30</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Length Culvert Crossings (m) - Lc = <u>40</u> | | | <u>15+325</u> | <u>19+000</u> | <u>3675</u> | |
| Width Creek Crossing Bridge (m) - Wbr = <u>14.6</u> | | | <u>0+000</u> | <u>0+000</u> | <u>0</u> | |
| Width of Right of Way (m) - Wr = <u>50</u> | | | Creek Crossing Bridges (m) = <u>0</u> | | | |
| Contingency Line O (%) - Co = <u>15.0%</u> | | | Length Road - Bridges (m) = <u>3675</u> | | | |
| CONCEPT COST ESTIMATE | | | | # Bridges = <u>0</u> | | |
| | | | | #Tunnels = <u>0</u> | | |
| | | | | # Culvert Crossings = <u>2</u> | | |
| | | | | #Bridge Creek Crossings = <u>0</u> | | |
| | | | | | | TOTAL |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | ITEM COST |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 12.9 | \$142,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | <u>133000</u> | \$1,729,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 85628 | \$1,028,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 5513 | \$248,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 15803 | \$379,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 331 | \$66,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | <u>0</u> | \$0 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | <u>0</u> | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | <u>0</u> | \$0 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | <u>0</u> | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | <u>0</u> | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 3675 | \$368,000 | 15.0% |
| b. Airport Access | | METER | \$100 | <u>0</u> | \$0 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | <u>1</u> | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | <u>0</u> | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | <u>0</u> | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$5,040,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. <u>Removal Items</u> (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$302,400 | <u>1</u> | \$302,000 | |
| 2. <u>Other Excavation and Embankment Construction</u> (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$151,200 | <u>1</u> | \$151,000 | |
| 3. <u>Miscellaneous Construction Items</u> (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,260,000 | <u>1</u> | \$1,260,000 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$6,753,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$6,753,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$675,300 | 1 | \$675,000 | |
| M Ferry System Acquisition Cost | | LUMP SUM | <u>\$0</u> | <u>0</u> | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$7,428,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$1,114,200 | 1 | \$1,114,000 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$148,560 | 1 | \$149,000 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$594,240 | 1 | \$594,000 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$1,114,200 | 1 | \$1,114,000 | |
| S RIGHT OF WAY | | HECTARE | <u>\$0</u> | <u>18.4</u> | \$0 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$10,000,000 |

| | | | | | | |
|--|--|-----------------|-----------------------------------|-----------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | G2 - <i>Airport Access</i> | | | |
| | | | FERRY | | | |
| | 1/15/2002 14:58 | | | | | Page 17 |
| | Width Clearing & Grubbing (m) - Wc = 35 | | Roadway (m) = | | | |
| | Unit Weight Asphalt (Megagram/m) - Wa = 1.50 | | 15+325 | 22+750 | 7425 | |
| | Unit Weight Aggregate Base Course (Megagram/m) - Wb = 4.30 | | 10+000 | 11+843 | 1843 | |
| | Unit Weight Borrow (Megagram/m) - Ws = 23.30 | | 0+000 | 0+000 | 0 | |
| | Length Culvert Crossings (m) - Lc = 40 | | 0+000 | 0+000 | 0 | |
| | Width Creek Crossing Bridge (m) - Wbr = 14.6 | | 0+000 | 0+000 | 0 | |
| | Width of Right of Way (m) - Wr = 50 | | | Bridges (m) = | 0 | |
| | Contingency Line O (%) - Co = 15.0% | | Length Road - Bridges (m) = 9268 | | | |
| CONCEPT COST ESTIMATE | | | # Bridges = 0 | | | |
| | | | #Tunnels = 0 | | | |
| | | | # Culvert Crossings = 2 | | | |
| | | | #Bridge Creek Crossings = 0 | | | |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | TOTAL |
| 1. Clearing and Grubbing | HECTARES | \$11,000 | 32.5 | \$358,000 | 5.0% | \$376,000 |
| 2. Rock Excavation | CUBIC METER | \$13 | 255000 | \$3,315,000 | 25.0% | \$4,144,000 |
| 3. Borrow | MEGAGRAM | \$12 | 215945 | \$2,591,000 | 10.0% | \$2,850,000 |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | MEGAGRAM | \$45 | 13902 | \$626,000 | 2.5% | \$642,000 |
| 2. Aggregate Base Course | MEGAGRAM | \$24 | 39853 | \$956,000 | 5.0% | \$1,004,000 |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | MEGAGRAM | \$200 | 835 | \$167,000 | 1.0% | \$169,000 |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | SQUARE METER | \$0 | 0 | \$0 | 10.0% | \$0 |
| b. Substructure | | | | | | |
| i. Deep Water | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% | \$0 |
| ii. Shallow Water | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% | \$0 |
| iii. Over Land | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% | \$0 |
| 2. Moveable Bridge | SQUARE METER | \$0 | 0 | \$0 | 0.0% | \$0 |
| 3. Parking Garage | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% | \$0 |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | METER | \$500 | 360 | \$180,000 | 15.0% | \$207,000 |
| 2. Bridges needed for creek crossings (See above for number) | SQUARE METER | \$970 | 0 | \$0 | 0.0% | \$0 |
| 3. Other Drainage | | | | | | |
| a. Development Access | METER | \$100 | 0 | \$0 | 15.0% | \$0 |
| b. Airport Access | METER | \$100 | 9268 | \$927,000 | 15.0% | \$1,066,000 |
| E TRAFFIC SERVICES | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% | \$250,000 |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% | \$0 |
| 2. Connection to Ketchikan | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% | \$0 |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$10,708,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | LUMP SUM | \$642,480 | 1 | \$642,000 | | \$642,000 |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | LUMP SUM | \$321,240 | 1 | \$321,000 | | \$321,000 |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | LUMP SUM | \$2,677,000 | 1 | \$2,677,000 | | \$2,677,000 |
| I SUB TOTAL (Lines G through H) | | | | | | \$14,348,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | SQUARE METER | \$1,100 | 300 | \$330,000 | 0.0% | \$330,000 |
| 2. Earthworks, Surfacing, Paving | SQUARE METER | \$65 | 23100 | \$1,502,000 | 0.0% | \$1,502,000 |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$16,180,000 |
| L MOBILIZATION (10% of Line K) | LUMP SUM | \$1,618,000 | 1 | \$1,618,000 | | \$1,618,000 |
| M Ferry System Acquisition Cost | LUMP SUM | \$21,560,000 | 1 | \$21,560,000 | 0.0% | \$21,560,000 |
| N SUB TOTAL (Lines K through M) | | | | | | \$39,358,000 |
| O CONTINGENCIES (15% of Lines N) | LUMP SUM | \$5,903,700 | 1 | \$5,904,000 | | \$5,904,000 |
| P MITIGATION (2% of Line N) | LUMP SUM | \$787,160 | 1 | \$787,000 | | \$787,000 |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | LUMP SUM | \$3,148,640 | 1 | \$3,149,000 | | \$3,149,000 |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | LUMP SUM | \$5,903,700 | 1 | \$5,904,000 | | \$5,904,000 |
| S RIGHT OF WAY | HECTARE | \$600,000 | 5 | \$3,000,000 | | \$3,000,000 |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$58,000,000 |

| | | | | | | |
|--|--|-----------------|--------------------------------|-----------------|-------------|--------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | G2 - Development Access | | | |
| | | | FERRY | | | |
| | 1/15/2002 14:58 | | | | | Page 18 |
| | Width Clearing & Grubbing (m) - Wc = 35 | | Roadway (m) = | | | |
| | Unit Weight Asphalt (Megagram/m) - Wa = 1.50 | 0+000 | 0+000 | 0 | | |
| | Unit Weight Aggregate Base Course (Megagram/m) - Wb = 4.30 | 0+000 | 0+000 | 0 | | |
| | Unit Weight Borrow (Megagram/m) - Ws = 23.30 | 0+000 | 0+000 | 0 | | |
| | Length Culvert Crossings (m) - Lc = 40 | 0+000 | 0+000 | 0 | | |
| | Width Creek Crossing Bridge (m) - Wbr = 14.6 | 0+000 | 0+000 | 0 | | |
| | Width of Right of Way (m) - Wr = 50 | | Bridges (m) = | 0 | | |
| | Contingency Line O (%) - Co = 15.0% | | Length Road - Bridges (m) = | 0 | | |
| CONCEPT COST ESTIMATE | | | # Bridges = | 0 | | |
| | | | #Tunnels = | 0 | | |
| | | | # Culvert Crossings = | 0 | | |
| | | | #Bridge Creek Crossings = | 0 | | |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| A EARTHWORK | | | | | | TOTAL |
| | | | | | | ITEM COST |
| | 1. Clearing and Grubbing | HECTARES | \$11,000 | 0 | \$0 | 5.0% |
| | 2. Rock Excavation | CUBIC METER | \$13 | 0 | \$0 | 25.0% |
| | 3. Borrow | MEGAGRAM | \$12 | 0 | \$0 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| | 1. Asphalt Concrete Pavement | MEGAGRAM | \$45 | 0 | \$0 | 2.5% |
| | 2. Aggregate Base Course | MEGAGRAM | \$24 | 0 | \$0 | 5.0% |
| | 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | MEGAGRAM | \$200 | 0 | \$0 | 1.0% |
| C STRUCTURES | | | | | | |
| | 1. Bridges (See above for number) | | | | | |
| | a. Superstructure. | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| | b. Substructure | | | | | |
| | i. Deep Water | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| | ii. Shallow Water | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| | iii. Over Land | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| | 2. Moveable Bridge | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| | 3. Parking Garage | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| | 1. Culvert Crossings (See above for number) | METER | \$500 | 0 | \$0 | 15.0% |
| | 2. Bridges needed for creek crossings (See above for number) | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| | 3. Other Drainage | | | | | |
| | a. Development Access | METER | \$100 | 0 | \$0 | 15.0% |
| | b. Airport Access | METER | \$100 | 0 | \$0 | 15.0% |
| | E TRAFFIC SERVICES | LUMP SUM | \$250,000 | 0 | \$0 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| | 1. Connection to Airport | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| | 2. Connection to Ketchikan | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$0 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| | 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | LUMP SUM | \$0 | 1 | \$0 | |
| | 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | LUMP SUM | \$0 | 1 | \$0 | |
| | 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | LUMP SUM | \$0 | 1 | \$0 | |
| I SUB TOTAL (Lines G through H) | | | | | | \$0 |
| J FERRY TERMINAL | | | | | | |
| | 1. Passenger Shelter & Ticket Booth | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| | 2. Earthworks, Surfacing, Paving | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$0 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$0 | 1 | \$0 | |
| M Ferry System Acquisition Cost | | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$0 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$0 | 1 | \$0 | |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$0 | 1 | \$0 | |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$0 | 1 | \$0 | |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$0 | 1 | \$0 | |
| S RIGHT OF WAY | | HECTARE | \$0 | 0 | \$0 | |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$0 |

| GRAVINA ACCESS PROJECT | | OPTION : | G3 - Airport Access | | | |
|--|---|-----------------|-----------------------------|---------------|--------------|--------------|
| | | | | FERRY | | |
| | | 1/15/2002 14:58 | | | | Page 19 |
| | Width Clearing & Grubbing (m) - Wc = | 35 | | Roadway (m) = | | |
| | Unit Weight Asphalt (Megagram/m) - Wa = | 1.50 | 13+700 | 15+325 | 1625 | |
| | Unit Weight Aggregate Base Course (Megagram/m) - Wb = | 4.30 | 10+000 | 11+768 | 1768 | |
| | Unit Weight Borrow (Megagram/m) - Ws = | 23.30 | 0+000 | 0+000 | 0 | |
| | Length Culvert Crossings (m) - Lc = | 40 | 0+000 | 0+000 | 0 | |
| | Width Creek Crossing Bridge (m) - Wbr = | 14.6 | 0+000 | 0+000 | 0 | |
| | Width of Right of Way (m) - Wr = | 50 | | Bridges (m) = | 0 | |
| | Contingency Line O (%) - Co = | 15.0% | Length Road - Bridges (m) = | | 3393 | |
| CONCEPT COST ESTIMATE | | | | # Bridges = | 0 | |
| | | | | #Tunnels = | 0 | |
| | | | # Culvert Crossings = | | 2 | |
| | | | #Bridge Creek Crossings = | | 0 | |
| | | | | | | TOTAL |
| | | | UNITS | UNIT COST | QUANTITY | COST |
| A EARTHWORK | | | | | | CONTINGENCY |
| 1. Clearing and Grubbing | | HECTARES | \$11,000 | 11.9 | \$131,000 | 5.0% |
| 2. Rock Excavation | | CUBIC METER | \$13 | 115000 | \$1,495,000 | 25.0% |
| 3. Borrow | | MEGAGRAM | \$12 | 79057 | \$949,000 | 10.0% |
| B SURFACING / PAVING | | | | | | |
| 1. Asphalt Concrete Pavement | | MEGAGRAM | \$45 | 5090 | \$229,000 | 2.5% |
| 2. Aggregate Base Course | | MEGAGRAM | \$24 | 14590 | \$350,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | MEGAGRAM | \$200 | 306 | \$61,200 | 1.0% |
| C STRUCTURES | | | | | | |
| 1. Bridges (See above for number) | | | | | | |
| a. Superstructure. | | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| b. Substructure | | | | | | |
| i. Deep Water | | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| ii. Shallow Water | | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| iii. Over Land | | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| 2. Moveable Bridge | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 3. Parking Garage | | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | |
| 1. Culvert Crossings (See above for number) | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | |
| a. Development Access | | METER | \$100 | 0 | \$0 | 15.0% |
| b. Airport Access | | METER | \$100 | 3393 | \$339,000 | 15.0% |
| E TRAFFIC SERVICES | | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | |
| 1. Connection to Airport | | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| 2. Connection to Ketchikan | | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | \$4,563,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | LUMP SUM | \$273,780 | 1 | \$274,000 | \$274,000 |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | LUMP SUM | \$136,890 | 1 | \$137,000 | \$137,000 |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | LUMP SUM | \$1,140,750 | 1 | \$1,141,000 | \$1,141,000 |
| I SUB TOTAL (Lines G through H) | | | | | | \$6,115,000 |
| J FERRY TERMINAL | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | SQUARE METER | \$1,100 | 300 | \$330,000 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | SQUARE METER | \$65 | 26400 | \$1,716,000 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | \$8,161,000 |
| L MOBILIZATION (10% of Line K) | | LUMP SUM | \$816,100 | 1 | \$816,000 | \$816,000 |
| M Ferry System Acquisition Cost | | LUMP SUM | \$21,560,000 | 1 | \$21,560,000 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | \$30,537,000 |
| O CONTINGENCIES (15% of Lines N) | | LUMP SUM | \$4,580,550 | 1 | \$4,581,000 | \$4,581,000 |
| P MITIGATION (2% of Line N) | | LUMP SUM | \$610,740 | 1 | \$611,000 | \$611,000 |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | LUMP SUM | \$2,442,960 | 1 | \$2,443,000 | \$2,443,000 |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | LUMP SUM | \$4,580,550 | 1 | \$4,581,000 | \$4,581,000 |
| S RIGHT OF WAY | | HECTARE | \$600,000 | 5 | \$3,000,000 | \$3,000,000 |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | \$46,000,000 |

| GRAVINA ACCESS PROJECT | | OPTION : | | G3 - Development Access | | | |
|--|---|-----------------|--------------|---------------------------|----------|-------------|--------------|
| | | | | FERRY | | | |
| | | 1/15/2002 14:58 | | | | | Page 20 |
| | Width Clearing & Grubbing (m) - Wc | = 35 | | Roadway (m) | = | | |
| | Unit Weight Asphalt (Megagram/m) - Wa | = 1.50 | 15+325 | 19+000 | | 3675 | |
| | Unit Weight Aggregate Base Course (Megagram/m) - Wb | = 4.30 | 0+000 | 0+000 | | 0 | |
| | Unit Weight Borrow (Megagram/m) - Ws | = 23.30 | 0+000 | 0+000 | | 0 | |
| | Length Culvert Crossings (m) - Lc | = 40 | 0+000 | 0+000 | | 0 | |
| | Width Creek Crossing Bridge (m) - Wbr | = 14.6 | 0+000 | 0+000 | | 0 | |
| | Width of Right of Way (m) - Wr | = 50 | | Bridges (m) | = | 0 | |
| | Contingency Line O (%) - Co | = 15.0% | | Length Road - Bridges (m) | = | 3675 | |
| CONCEPT COST ESTIMATE | | | | # Bridges | = | 0 | |
| | | | | #Tunnels | = | 0 | |
| | | | | # Culvert Crossings | = | 0 | |
| | | | | #Bridge Creek Crossings | = | 0 | |
| | | | | | | | TOTAL |
| | | | | | | | ITEM COST |
| A EARTHWORK | | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| 1. Clearing and Grubbing | | | HECTARES | \$11,000 | 12.9 | \$142,000 | 5.0% |
| 2. Rock Excavation | | | CUBIC METER | \$13 | 133000 | \$1,729,000 | 25.0% |
| 3. Borrow | | | MEGAGRAM | \$12 | 85628 | \$1,028,000 | 10.0% |
| B SURFACING / PAVING | | | | | | | |
| 1. Asphalt Concrete Pavement | | | MEGAGRAM | \$45 | 5513 | \$248,000 | 2.5% |
| 2. Aggregate Base Course | | | MEGAGRAM | \$24 | 15803 | \$379,000 | 5.0% |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | | | MEGAGRAM | \$200 | 331 | \$66,200 | 1.0% |
| C STRUCTURES | | | | | | | |
| 1. Bridges (See above for number) | | | | | | | |
| a. Superstructure. | | | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| b. Substructure | | | | | | | |
| i. Deep Water | | | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| ii. Shallow Water | | | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| iii. Over Land | | | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| 2. Moveable Bridge | | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 3. Parking Garage | | | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| D DRAINAGE | | | | | | | |
| 1. Culvert Crossings (See above for number) | | | METER | \$500 | 360 | \$180,000 | 15.0% |
| 2. Bridges needed for creek crossings (See above for number) | | | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| 3. Other Drainage | | | | | | | |
| a. Development Access | | | METER | \$100 | 3675 | \$368,000 | 15.0% |
| b. Airport Access | | | METER | \$100 | 0 | \$0 | 15.0% |
| E TRAFFIC SERVICES | | | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| F MISCELLANEOUS ROADS | | | | | | | |
| 1. Connection to Airport | | | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| 2. Connection to Ketchikan | | | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| G SUB TOTAL (Lines A, B, D through F) | | | | | | | \$5,040,000 |
| H MISCELLANEOUS ROADWAY ITEMS | | | | | | | |
| 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | | | LUMP SUM | \$302,400 | 1 | \$302,000 | \$302,000 |
| 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | | | LUMP SUM | \$151,200 | 1 | \$151,000 | \$151,000 |
| 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | | | LUMP SUM | \$1,260,000 | 1 | \$1,260,000 | \$1,260,000 |
| I SUB TOTAL (Lines G through H) | | | | | | | \$6,753,000 |
| J FERRY TERMINAL | | | | | | | |
| 1. Passenger Shelter & Ticket Booth | | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| 2. Earthworks, Surfacing, Paving | | | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| K SUB TOTAL (Lines A through F, H & J) | | | | | | | \$6,753,000 |
| L MOBILIZATION (10% of Line K) | | | LUMP SUM | \$675,300 | 1 | \$675,000 | \$675,000 |
| M Ferry System Acquisition Cost | | | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| N SUB TOTAL (Lines K through M) | | | | | | | \$7,428,000 |
| O CONTINGENCIES (15% of Lines N) | | | LUMP SUM | \$1,114,200 | 1 | \$1,114,000 | \$1,114,000 |
| P MITIGATION (2% of Line N) | | | LUMP SUM | \$148,560 | 1 | \$149,000 | \$149,000 |
| Q ENGINEERING/ADMINISTRATION (8% of Line N) | | | LUMP SUM | \$594,240 | 1 | \$594,000 | \$594,000 |
| R CONSTRUCTION MANAGEMENT (11% of Line N) | | | LUMP SUM | \$1,114,200 | 1 | \$1,114,000 | \$1,114,000 |
| S RIGHT OF WAY | | | HECTARE | \$0 | 18.4 | \$0 | \$0 |
| T TOTAL ESTIMATED COST (Lines N through S) | | | | | | | \$10,000,000 |

| | | | | | | |
|-------------------------------|--|-----------------|----------------------------|-----------------------------|--------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | G4 - Airport Access | | | |
| | | | FERRY | | | |
| | | 1/15/2002 14:58 | | | | Page 21 |
| | Width Clearing & Grubbing (m) - Wc = | 35 | | Roadway (m) = | | |
| | Unit Weight Asphalt (Megagram/m) - Wa = | 1.50 | 0+000 | 0+000 | 0 | |
| | Unit Weight Aggregate Base Course (Megagram/m) - Wb = | 4.30 | 0+000 | 0+000 | 0 | |
| | Unit Weight Borrow (Megagram/m) - Ws = | 23.30 | 0+000 | 0+000 | 0 | |
| | Length Culvert Crossings (m) - Lc = | 40 | 0+000 | 0+000 | 0 | |
| | Width Creek Crossing Bridge (m) - Wbr = | 14.6 | 0+000 | 0+000 | 0 | |
| | Width of Right of Way (m) - Wr = | 50 | | Bridges (m) = | 0 | |
| | Contingency Line O (%) - Co = | 15.0% | | Length Road - Bridges (m) = | 0 | |
| | CONCEPT COST ESTIMATE | | | # Bridges = | 0 | |
| | | | | #Tunnels = | 0 | |
| | | | | # Culvert Crossings = | 0 | |
| | | | | #Bridge Creek Crossings = | 0 | |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| | A EARTHWORK | | | | | TOTAL |
| | 1. Clearing and Grubbing | HECTARES | \$11,000 | 0 | \$0 | 5.0% |
| | 2. Rock Excavation | CUBIC METER | \$13 | 0 | \$0 | 25.0% |
| | 3. Borrow | MEGAGRAM | \$12 | 0 | \$0 | 10.0% |
| | B SURFACING / PAVING | | | | | |
| | 1. Asphalt Concrete Pavement | MEGAGRAM | \$45 | 0 | \$0 | 2.5% |
| | 2. Aggregate Base Course | MEGAGRAM | \$24 | 0 | \$0 | 5.0% |
| | 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | MEGAGRAM | \$200 | 0 | \$0 | 1.0% |
| | C STRUCTURES | | | | | |
| | 1. Bridges (See above for number) | | | | | |
| | a. Superstructure. | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| | b. Substructure | | | | | |
| | i. Deep Water | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| | ii. Shallow Water | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| | iii. Over Land | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| | 2. Moveable Bridge | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| | 3. Parking Garage | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| | D DRAINAGE | | | | | |
| | 1. Culvert Crossings (See above for number) | METER | \$500 | 0 | \$0 | 15.0% |
| | 2. Bridges needed for creek crossings (See above for number) | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| | 3. Other Drainage | | | | | |
| | a. Development Access | METER | \$100 | 0 | \$0 | 15.0% |
| | b. Airport Access | METER | \$100 | 0 | \$0 | 15.0% |
| | E TRAFFIC SERVICES | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| | F MISCELLANEOUS ROADS | | | | | |
| | 1. Connection to Airport | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| | 2. Connection to Ketchikan | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| | G SUB TOTAL (Lines A, B, D through F) | | | | | \$250,000 |
| | H MISCELLANEOUS ROADWAY ITEMS | | | | | |
| | 1. Removal Items (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | LUMP SUM | \$15,000 | 1 | \$15,000 | |
| | 2. Other Excavation and Embankment Construction (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | LUMP SUM | \$7,500 | 1 | \$8,000 | |
| | 3. Miscellaneous Construction Items (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | LUMP SUM | \$62,500 | 1 | \$63,000 | |
| | I SUB TOTAL (Lines G through H) | | | | | \$336,000 |
| | J FERRY TERMINAL | | | | | |
| | 1. Passenger Shelter & Ticket Booth | SQUARE METER | \$1,100 | 300 | \$330,000 | 0.0% |
| | 2. Earthworks, Surfacing, Paving | SQUARE METER | \$65 | \$500 | \$553,000 | 0.0% |
| | K SUB TOTAL (Lines A through F, H & J) | | | | | \$1,219,000 |
| | L MOBILIZATION (10% of Line K) | LUMP SUM | \$121,900 | 1 | \$122,000 | |
| | M Ferry System Acquisition Cost | LUMP SUM | \$21,560,000 | 1 | \$21,560,000 | 0.0% |
| | N SUB TOTAL (Lines K through M) | | | | | \$22,901,000 |
| | O CONTINGENCIES (15% of Lines N) | LUMP SUM | \$3,435,150 | 1 | \$3,435,000 | |
| | P MITIGATION (2% of Line N) | LUMP SUM | \$458,020 | 1 | \$458,000 | |
| | Q ENGINEERING/ADMINISTRATION (8% of Line N) | LUMP SUM | \$1,832,080 | 1 | \$1,832,000 | |
| | R CONSTRUCTION MANAGEMENT (11% of Line N) | LUMP SUM | \$3,435,150 | 1 | \$3,435,000 | |
| | S RIGHT OF WAY | HECTARE | \$600,000 | 5 | \$3,000,000 | |
| | T TOTAL ESTIMATED COST (Lines N through S) | | | | | \$35,000,000 |

| | | | | | | |
|-------------------------------|---|-----------------|---------------------------------------|-----------------------------|-------------|---------------------|
| GRAVINA ACCESS PROJECT | | OPTION : | G4 - <i>Development Access</i> | | | |
| | | | FERRY | | | |
| | | 1/15/2002 14:58 | | | | Page 22 |
| | Width Clearing & Grubbing (m) - Wc = | 35 | | Roadway (m) = | | |
| | Unit Weight Asphalt (Megagram/m) - Wa = | 1.50 | 10+000 | 11+768 | 1768 | |
| | Unit Weight Aggregate Base Course (Megagram/m) - Wb = | 4.30 | 15+325 | 19+000 | 3675 | |
| | Unit Weight Borrow (Megagram/m) - Ws = | 23.30 | 0+000 | 0+000 | 0 | |
| | Length Culvert Crossings (m) - Lc = | 40 | 0+000 | 0+000 | 0 | |
| | Width Creek Crossing Bridge (m) - Wbr = | 14.6 | 0+000 | 0+000 | 0 | |
| | Width of Right of Way (m) - Wr = | 50 | | Bridges (m) = | 0 | |
| | Contingency Line O (%) - Co = | 15.0% | | Length Road - Bridges (m) = | 5443 | |
| | CONCEPT COST ESTIMATE | | | # Bridges = | 0 | |
| | | | | #Tunnels = | 0 | |
| | | | | # Culvert Crossings = | 9 | |
| | | | | #Bridge Creek Crossings = | 0 | |
| | | | | | | |
| | | UNITS | UNIT COST | QUANTITY | COST | CONTINGENCY |
| | | | | | | TOTAL |
| | | | | | | ITEM COST |
| | A EARTHWORK | | | | | |
| | 1. Clearing and Grubbing | HECTARES | \$11,000 | 19.1 | \$210,000 | 5.0% |
| | 2. Rock Excavation | CUBIC METER | \$13 | 191000 | \$2,483,000 | 25.0% |
| | 3. Borrow | MEGAGRAM | \$12 | 126822 | \$1,522,000 | 10.0% |
| | B SURFACING / PAVING | | | | | |
| | 1. Asphalt Concrete Pavement | MEGAGRAM | \$45 | 8165 | \$367,000 | 2.5% |
| | 2. Aggregate Base Course | MEGAGRAM | \$24 | 23405 | \$562,000 | 5.0% |
| | 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | MEGAGRAM | \$200 | 490 | \$98,000 | 1.0% |
| | C STRUCTURES | | | | | |
| | 1. Bridges (See above for number) | | | | | |
| | a. Superstructure. | SQUARE METER | \$0 | 0 | \$0 | 10.0% |
| | b. Substructure | | | | | |
| | i. Deep Water | LUMP SUM | \$14,700,000 | 0 | \$0 | 25.0% |
| | ii. Shallow Water | SQUARE METER | \$1,615 | 0 | \$0 | 25.0% |
| | iii. Over Land | SQUARE METER | \$1,076 | 0 | \$0 | 25.0% |
| | 2. Moveable Bridge | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| | 3. Parking Garage | LUMP SUM | \$7,000,000 | 0 | \$0 | 0.0% |
| | D DRAINAGE | | | | | |
| | 1. Culvert Crossings (See above for number) | METER | \$500 | 360 | \$180,000 | 15.0% |
| | 2. Bridges needed for creek crossings (See above for number) | SQUARE METER | \$970 | 0 | \$0 | 0.0% |
| | 3. Other Drainage | | | | | |
| | a. Development Access | METER | \$100 | 5443 | \$544,000 | 15.0% |
| | b. Airport Access | METER | \$100 | 0 | \$0 | 15.0% |
| | E TRAFFIC SERVICES | LUMP SUM | \$250,000 | 1 | \$250,000 | 0.0% |
| | F MISCELLANEOUS ROADS | | | | | |
| | 1. Connection to Airport | LUMP SUM | \$181,500 | 0 | \$0 | 10.0% |
| | 2. Connection to Ketchikan | LUMP SUM | \$121,000 | 0 | \$0 | 10.0% |
| | G SUB TOTAL (Lines A, B, D through F) | | | | | \$7,147,000 |
| | H MISCELLANEOUS ROADWAY ITEMS | | | | | |
| | 1. <u>Removal Items</u> (6% of Line G; Items include pavement, culvert pipes, sidewalks, curb & gutter, etc.) | LUMP SUM | \$428,820 | 1 | \$429,000 | |
| | 2. <u>Other Excavation and Embankment Construction</u> (3% of Line G; Items include muck excavation, minor structure excavation and backfill, etc.) | LUMP SUM | \$214,410 | 1 | \$214,000 | |
| | 3. <u>Miscellaneous Construction Items</u> (25% of Line G; Items include w-beam guardrail, guardrail/bridgerail connections, SRT/CRT end sections, sidewalk, curb&gutter, seeding, topsoil, geotextiles, riprap, erosion and pollution control/administration, construction surveying, traffic maintenance, traffic control devices, lighting/load centers, etc.) | LUMP SUM | \$1,786,750 | 1 | \$1,787,000 | |
| | I SUB TOTAL (Lines G through H) | | | | | \$9,577,000 |
| | J FERRY TERMINAL | | | | | |
| | 1. Passenger Shelter & Ticket Booth | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| | 2. Earthworks, Surfacing, Paving | SQUARE METER | \$0 | 0 | \$0 | 0.0% |
| | K SUB TOTAL (Lines A through F, H & J) | | | | | \$9,577,000 |
| | L MOBILIZATION (10% of Line K) | LUMP SUM | \$957,700 | 1 | \$958,000 | |
| | M Ferry System Acquisition Cost | LUMP SUM | \$0 | 0 | \$0 | 0.0% |
| | N SUB TOTAL (Lines K through M) | | | | | \$10,535,000 |
| | O CONTINGENCIES (15% of Lines N) | LUMP SUM | \$1,580,250 | 1 | \$1,580,000 | |
| | P MITIGATION (2% of Line N) | LUMP SUM | \$210,700 | 1 | \$211,000 | |
| | Q ENGINEERING/ADMINISTRATION (8% of Line N) | LUMP SUM | \$842,800 | 1 | \$843,000 | |
| | R CONSTRUCTION MANAGEMENT (11% of Line N) | LUMP SUM | \$1,580,250 | 1 | \$1,580,000 | |
| | S RIGHT OF WAY | HECTARE | \$0 | 27.2 | \$0 | |
| | T TOTAL ESTIMATED COST (Lines N through S) | | | | | \$15,000,000 |

| GRAVINA ACCESS PROJECT | | | OPTION : | | | 1. Connection to Airport | | | 2. Connection to Ketchikan | | |
|------------------------|--|--|---------------------------------------|--|--|---------------------------------------|--|--|---------------------------------------|--|--|
| | | | 1/16/2002 8:16 | | | Page 1 | | | Page 2 | | |
| | | | Roadway (m) = | | | Roadway (m) = | | | Roadway (m) = | | |
| | | | <u>0+000</u> <u>0+150</u> 150 | | | <u>0+000</u> <u>0+100</u> 100 | | | <u>0+000</u> <u>0+100</u> 100 | | |
| | | | <u>0+000</u> <u>0+000</u> 0 | | | <u>0+000</u> <u>0+000</u> 0 | | | <u>0+000</u> <u>0+000</u> 0 | | |
| | | | Creek Crossing Bridges (m) = <u>0</u> | | | Creek Crossing Bridges (m) = <u>0</u> | | | Creek Crossing Bridges (m) = <u>0</u> | | |
| | | | Length Road - Bridges (m) = 150 | | | Length Road - Bridges (m) = 100 | | | Length Road - Bridges (m) = 100 | | |
| | | | # Bridges = <u>0</u> | | | # Bridges = <u>0</u> | | | # Bridges = <u>0</u> | | |
| | | | #Tunnels = <u>0</u> | | | #Tunnels = <u>0</u> | | | #Tunnels = <u>0</u> | | |
| | | | # Culvert Crossings = <u>0</u> | | | # Culvert Crossings = <u>0</u> | | | # Culvert Crossings = <u>0</u> | | |
| | | | #Bridge Creek Crossings = <u>0</u> | | | #Bridge Creek Crossings = <u>0</u> | | | #Bridge Creek Crossings = <u>0</u> | | |
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| GRAVINA ACCESS PROJECT | | | ROADWAY - UNIT COST / METER USING GIH2 | | | REPAVE - UNIT COST / METER | | |
|--|--|----------------|---|-----------------|-------------|---------------------------------------|---------------------|-------------|
| | | | | | | | | |
| | | 1/16/2002 8:26 | | | Page 1 | | | Page 2 |
| | | | Roadway (m) = | | | Roadway (m) = | | |
| | | | <u>0+000</u> <u>0+001</u> 1 | | | <u>0+000</u> <u>0+000</u> 0 | | |
| | | | <u>0+000</u> <u>0+000</u> 0 | | | <u>0+000</u> <u>0+000</u> 0 | | |
| | | | Creek Crossing Bridges (m) = <u>0</u> | | | Creek Crossing Bridges (m) = <u>0</u> | | |
| | | | Length Road - Bridges (m) = 1 | | | Length Road - Bridges (m) = 0 | | |
| | | | # Bridges = <u>0</u> | | | # Bridges = <u>0</u> | | |
| | | | #Tunnels = <u>0</u> | | | #Tunnels = <u>0</u> | | |
| | | | # Culvert Crossings = <u>0</u> | | | # Culvert Crossings = <u>0</u> | | |
| | | | #Bridge Creek Crossings = <u>0</u> | | | #Bridge Creek Crossings = <u>0</u> | | |
| CONCEPT COST ESTIMATE | | | | | | | | |
| | Overlay Thickness (m) (to) = | <u>0.0508</u> | | | | | | |
| | Unit Weight of Asphalt (megagram/m3) (w) = | <u>2.432</u> | | | | | | |
| | | <u>UNITS</u> | <u>UNIT COST</u> | <u>QUANTITY</u> | <u>COST</u> | <u>UNIT COST</u> | <u>QUANTITY</u> | <u>COST</u> |
| A EARTHWORK | | | | | | | | |
| 1. Clearing and Grubbing | HECTARES | | \$11,000 | 0.01 | \$110 | \$11,000 | 0 | \$0 |
| 2. Rock Excavation | CUBIC METER | | \$13 | <u>0</u> | \$0 | \$13 | <u>0</u> | \$0 |
| 3. Borrow | MEGAGRAM | | \$12 | <u>0</u> | \$0 | \$12 | <u>0</u> | \$0 |
| B SURFACING / PAVING | | | | | | | | |
| 1. Asphalt Concrete Pavement | MEGAGRAM | | \$45 | 1.5 | \$68 | \$45 | <u>1.804</u> | \$81 |
| 2. Aggregate Base Course | MEGAGRAM | | \$24 | 4.3 | \$103 | \$24 | 0 | \$0 |
| 3. Asphalt Cement (PG-52-28) (6% of Asphalt Conc. Pavmt) | MEGAGRAM | | \$200 | 0.1 | \$20 | \$200 | 0.11 | \$22 |
| D DRAINAGE | | | | | | | | |
| 3. Other Drainage | | | | | | | | |
| a. Development Access | METER | | \$100 | 0 | \$0 | \$100 | 0 | \$0 |
| b. Airport Access | METER | | \$100 | 1 | \$100 | \$100 | 0 | \$0 |
| Z DEMOLISH | | | | | | | | |
| 1. Pavement Planing | SQUARE METER | | <u>\$1.7</u> | <u>0</u> | \$0 | \$1.7 | <u>14.6</u> | \$25 |
| | | | | | \$401 | | \$/meter = | \$130 |
| | | | LENGTH (m) | 1 | | WIDTH (m) | 14.6 | |
| | | | (costroad) | | \$400 | | \$/m ² = | \$9 |
| | | | | | | | | |
| | | | Cost per Mile = | | \$643,738 | Cost per Mile = | | \$14,330 |

GRAVINA ACCESS PROJECT

1/16/2002 8:16

CONCEPT COST ESTIMATE

PROJECT SUMMARY

Includes - 1) Construction, Ferry Acquisition, and Mobilization (Line N of Cost Sheet)
2) Contingencies (Line O of Cost Sheet)
3) Environmental Mitigation (Line P of Cost Sheet)

Constant 2003 Dollars

| | <u>OPTION</u> | <u>DESCRIPTION</u> | <u>AIRPORT ACCESS</u> | <u>DEVELOP. ACCESS</u> | <u>CONSTRUCTION SUBTOTAL</u> | <u>CONSTRUCTION & PROJECT DEVELOPMENT COSTS</u> | <u>LIFE CYCLE COSTS</u> | <u>ANNUAL OPERATIONS & MAINTENANCE COSTS</u> | <u>HORIZONTAL NAVIGABLE CLEARANCE (ft)</u> | <u>VERTICAL NAVIGABLE CLEARANCE (ft)</u> | Roadway Costs <u>AIRPORT ACCESS</u> | Length (m) | Roadway Cost/ <u>Mile</u> | Roadway Costs <u>DEVELOPMENT ACCESS</u> | Length (m) | Roadway Cost/ <u>Mile</u> |
|----|---------------|--|-----------------------|------------------------|------------------------------|---|-------------------------|--|--|--|--|------------|------------------------------|--|------------|------------------------------|
| 0 | NB | NO BUILD | \$0 | \$0 | \$0 | \$0 | -\$12,648,617 | \$1,070,000 | | | \$0 | 0 | | \$0 | 0 | |
| 1 | C3(a1) | 185' BRIDGE CLEARANCE - AIRPORT AREA | \$141,480,501 | \$12,225,657 | \$153,706,158 | \$193,066,158 | -\$164,595,202 | \$100,000 | 550 | 185 | \$3,717,051 | 1252 | \$4,777,966 | \$6,432,457 | 5175 | \$2,000,393 |
| 2 | C3(a2) | 200' BRIDGE CLEARANCE - AIRPORT AREA | \$136,688,000 | \$12,879,000 | \$149,567,000 | \$175,000,000 | -\$147,294,910 | \$100,000 | 550 | 200 | \$2,944,000 | 1137 | \$4,167,026 | \$7,011,000 | 5175 | \$2,180,311 |
| 3 | C3(b) | 120' BRIDGE CLEARANCE - AIRPORT AREA | \$127,387,000 | \$12,023,000 | \$139,410,000 | \$167,000,000 | -\$142,212,792 | \$100,000 | 500 | 120 | \$2,474,000 | 1364 | \$2,919,001 | \$6,515,000 | 5175 | \$2,026,063 |
| 4 | C4(a1) | 185' BRIDGE CLEARANCE - AIRPORT AREA | \$137,368,818 | \$12,020,707 | \$149,389,525 | \$193,036,525 | -\$167,876,895 | \$100,000 | 550 | 185 | \$9,946,368 | 1208 | \$13,250,933 | \$6,513,707 | 5175 | \$2,025,661 |
| 5 | C4(a2) | 200' BRIDGE CLEARANCE - AIRPORT AREA | \$142,099,000 | \$12,023,000 | \$154,122,000 | \$185,000,000 | -\$158,536,362 | \$100,000 | 550 | 200 | \$9,524,000 | 1113 | \$13,771,242 | \$6,515,000 | 5175 | \$2,026,063 |
| 6 | D1 | 120' BRIDGE CLEARANCE - AIRPORT AREA | \$84,461,000 | \$12,023,000 | \$96,484,000 | \$116,000,000 | -\$100,747,238 | \$80,000 | 500 | 120 | \$5,857,000 | 675 | \$13,964,337 | \$6,515,000 | 5175 | \$2,026,063 |
| 7 | F3(1) | 185' BRIDGE CLEARANCE - PENNOCK ISLAND | \$150,273,470 | \$8,375,362 | \$158,648,832 | \$191,794,832 | -\$167,778,682 | \$120,000 | 550 | 185 | \$10,947,870 | 7046 | \$2,500,552 | \$4,583,362 | 3675 | \$2,007,131 |
| 8 | F3(2) | 200' BRIDGE CLEARANCE - PENNOCK ISLAND | \$139,458,000 | \$8,691,000 | \$148,149,000 | \$177,000,000 | -\$151,151,591 | \$120,000 | 550 | 200 | \$9,022,000 | 7553 | \$1,922,349 | \$4,583,000 | 3675 | \$2,006,972 |
| 9 | G2 | FERRY - PENNINSULA POINT | \$46,049,000 | \$0 | \$46,049,000 | \$58,000,000 | -\$99,032,851 | \$3,336,000 | | | \$10,251,000 | 9268 | \$1,780,037 | \$0 | 0 | |
| 10 | G3 | FERRY - DOWNTOWN | \$35,729,000 | \$8,691,000 | \$44,420,000 | \$56,000,000 | -\$97,032,851 | \$3,336,000 | | | \$4,106,000 | 3393 | \$1,947,529 | \$4,583,000 | 3675 | \$2,006,972 |
| 11 | G4 | FERRY - EXPAND EXISTING | \$26,794,000 | \$12,326,000 | \$39,120,000 | \$50,000,000 | -\$91,032,851 | \$3,336,000 | | | \$0 | 0 | | \$6,690,000 | 5443 | \$1,978,047 |
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Sum Earthwork (A),
Surfacing/Paving (B), and
Drainage - Other (D3)

Gravina Access Project - Alternative Analysis Matrix

| Alternative | Type of Structure | | Length of Structure (m) | Travel Distance (m) (Airport to Ketchikan Central Business) | Comparative Travel Time (min) | Runway Approach Zone Infringement | Part 77 Airspace Infringement | Max. Grade | Draft (Below MLLW) (m) | Horizontal Navigable Clearance (m) | Vertical Navigable Clearance (m) (Above MHHW) | Fulfillment of Purpose and Need | Traffic Capacity | Reliability | Emergency Response | Reasonable Comparative Annual O&M Costs | Utilities Impacts | Right of Way Impacts | Section 4(f) and 106 Impacts | Environmental Impacts | New Roadway Construction (m) |
|-------------|------------------------|------------------|-------------------------|--|-------------------------------|-----------------------------------|-------------------------------|------------|------------------------|------------------------------------|--|---------------------------------|------------------|-------------|--------------------|---|-------------------|----------------------|------------------------------|-----------------------|------------------------------|
| C3(a1) | 185' CLEARANCE | AIRPORT AREA | 1620 | 9994 | 14.0 | N | Y | 8.04% | 12.19 | 167.64 | 56.39 | | | | | \$ 100,000 | | | | | 6030 |
| C3(a2) | 200' CLEARANCE | AIRPORT AREA | 1735 | 9994 | 14.0 | N | Y | 8.00% | 12.19 | 167.64 | 60.96 | | | | | \$ 100,000 | | | | | 5915 |
| C3(b) | 120' CLEARANCE | AIRPORT AREA | 1297 | 8931 | 12.0 | N | N | 8.00% | 12.19 | 152.4 | 36.58 | | | | | \$ 100,000 | | | | | 6342 |
| C4(a1) | 185' CLEARANCE | AIRPORT AREA | 1425 | 7821 | 11.0 | N | Y | 8.00% | 12.19 | 167.64 | 56.39 | | | | | \$ 100,000 | | | | | 5886 |
| C4(a2) | 200' CLEARANCE | AIRPORT AREA | 1520 | 7821 | 11.0 | N | Y | 8.00% | 12.19 | 167.64 | 60.96 | | | | | \$ 100,000 | | | | | 5791 |
| D1 | 120' CLEARANCE | AIRPORT AREA | 980 | 6663 | 11.0 | N | N | 8.00% | 12.19 | 152.4 | 36.58 | | | | | \$ 80,000 | | | | | 5353 |
| F3(1) | 185' CLEARANCE | PENNOCK ISLAND | 853 677 | 11282 | 12.0 | N | N | 8.00% | 12.19 | 167.64 152.4 | 56.39 18.28 | | | | | \$ 120,000 | | | | | 12208 |
| F3(2) | 200' CLEARANCE | PENNOCK ISLAND | 978 677 | 11282 | 12.0 | N | N | 8.00% | 12.19 | 167.64 152.4 | 60.96 18.28 | | | | | \$ 120,000 | | | | | 12085 |
| G2 | AIRPORT FERRY | PENNINSULA POINT | | 15450 | 40.0 | | | | | | | | | | | \$ 3,336,000 | | | | | 5640 |
| G3 | AIRPORT FERRY | DOWNTOWN | | 7210 | 33.0 | | | | | | | | | | | \$ 3,336,000 | | | | | 6166 |
| G4 | ADDITIONAL FERRY ROUTE | EXPAND EXISTING | | 5472 | 28.0 | | | | | | | | | | | \$ 3,336,000 | | | | | 4546 |

| | OPTION : | NB | C3(a2) | C3(b) | C4(a2) | D1 | F3(2) |
|--|--|---------------------|--|--|--|--|--|
| | 1/16/2002 8:16 | NO BUILD | 200' BRIDGE CLEARANCE - AIRPORT AREA | 120' BRIDGE CLEARANCE - AIRPORT AREA | 200' BRIDGE CLEARANCE - AIRPORT AREA | 120' BRIDGE CLEARANCE - AIRPORT AREA | 200' BRIDGE CLEARANCE - PENNOCK ISLAND |
| Begin Construction - Y = 2003 Life Span (years) - n = 20 Years to Construct - yc = 3 Initial Cost, Distributed over the # of Years to Construct (Y/N) N Eff. Real Discount Rate/Yr - i = 4.2% Roadway Repaving* (\$/m) = \$205 Repaving* (\$/m²) = \$14 | 2 Ferries 1 Route | 0 | 2 | 3 | 5 | 6 | 8 |
| CASH FLOW (Constant 2003 Dollars): | | | | | | | |
| LIABILITIES: | | | | | | | |
| Initial Cost of Constr. & Project Development: Year 2003 to Year 2005 (Beginning of Year) | 0 | \$175,000,000 | \$167,000,000 | \$185,000,000 | \$116,000,000 | \$177,000,000 | |
| Annual Operating & Maintenance Costs: Year 2006 to 2025 (End of Year) | \$1,070,000 | \$100,000 | \$100,000 | \$100,000 | \$80,000 | \$120,000 | |
| Periodic Maintenance Costs: | | | | | | | |
| Repaving: | \$109,690 | \$1,609,250 | \$1,606,995 | \$1,539,755 | \$1,339,265 | \$2,949,335 | |
| Frequency (Years): | 20 | 20 | 20 | 20 | 20 | 20 | |
| Length Project (m): | 0 | 7850 | 7839 | 7511 | 6533 | 14387 | |
| Parking Lot (m²): | 7835 | 0 | 0 | 0 | 0 | 0 | |
| Mechanical/Electrical Equipment Replacement: | \$5,244,000 | \$0 | \$0 | \$0 | \$0 | \$0 | |
| Frequency (Years): | 25 | 1 | 1 | 1 | 1 | 1 | |
| Terminal Maintenance: | \$3,495,000 | \$0 | \$0 | \$0 | \$0 | \$0 | |
| Frequency (Years): | 10 | 10 | 10 | 10 | 10 | 10 | |
| Existing Ferry Replacement: | \$3,825,000 | \$0 | \$0 | \$0 | \$0 | \$0 | |
| Year Ferry 2 Replaced: | 10 | 10 | 10 | 10 | 10 | 10 | |
| Ferry Replacement(1): | \$3,825,000 | \$0 | \$0 | \$0 | \$0 | \$0 | |
| Frequency (Years): | 50 | 50 | 50 | 50 | 50 | 50 | |
| EQUITY: | | | | | | | |
| Salvage Value**: | | | | | | | |
| *Paving Unit Costs Include: | Bridge(s): | \$0 | \$74,410,600 | \$66,893,933 | \$71,212,533 | \$41,724,467 | \$70,235,733 |
| 10% Mobilization | Construction Cost: | \$0 | \$101,469,000 | \$91,219,000 | \$97,108,000 | \$56,897,000 | \$95,776,000 |
| 15% Contingencies | Life of Bridge(s): | 75 | 75 | 75 | 75 | 75 | 75 |
| 8% Engineering/Admin. | Parking Garage(s): | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| 15% Construction Mngmnt | Construction Cost: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| **Straight Line Depreciation Method. | Life of Parking Garage(s): | 75 | 75 | 75 | 75 | 75 | 75 |
| | Paving/Repaving: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Mechanical/Electrical Equipment/Replacement: | \$1,048,800 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Terminal Maintenance: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 1/Replacement Salvage: | \$2,295,000 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 2/Replacement Salvage: | \$3,060,000 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 3-4/Replacement Salvage: | \$4,590,000 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Life of Ferry(s): | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| LIFE CYCLE COST (2003 Dollars): | | | | | | | |
| LIABILITIES: | | | | | | | |
| Initial Cost of Constr. & Project Development: | \$0 | \$175,000,000 | \$167,000,000 | \$185,000,000 | \$116,000,000 | \$177,000,000 | |
| Annual Operating & Maintenance Costs: | \$12,628,519 | \$1,180,235 | \$1,180,235 | \$1,180,235 | \$944,188 | \$1,416,283 | |
| Periodic Maintenance Costs: | Repaving: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Mechanical/Electrical Equipment Replacement: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Terminal Maintenance: | \$2,047,231 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 1 Replacement (initial replacement not included): | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 2 Replacement: | \$2,240,532 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 3-4 Replacement: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| TOTAL LIFE CYCLE COST OF LIABILITIES : | \$16,916,282 | \$176,180,235 | \$168,180,235 | \$186,180,235 | \$116,944,188 | \$178,416,283 | |
| EQUITY: | | | | | | | |
| Salvage Value**: | | | | | | | |
| Bridge(s): | \$0 | \$28,885,326 | \$25,967,444 | \$27,643,874 | \$16,196,951 | \$27,264,691 | |
| Parking Garage(s): | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Paving/Repaving: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Mechanical/Electrical Equipment/Replacement: | \$407,132 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Terminal Maintenance: | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 1/Replacement Salvage: | \$890,892 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Ferry 2/Replacement Salvage: | \$1,187,856 | \$0 | | | | | |

The Average Annual O&M Costs is not used in calculating Life Cycle Costs. The Average Annual O&M Cost includes all initial construction and project development costs, plus all annual operating and maintenance costs, plus all periodic maintenance costs.

GRAVINA ACCESS PROJECT

| OPTION : | G2 | G3 | G4 |
|---|---|---|---|
| 1/16/2002 8:16 | FERRY - PENINSULA POINT | FERRY - DOWNTOWN | FERRY - EXPAND EXISTING |
| Begin Construction - Y = 2003 Life Span (years) - n = 20 Years to Construct - yc = 3 Initial Cost, Distributed over the # of Years to Construct (Y/N) N Eff. Real Discount Rate/Yr - i = 4.2% Roadway Repaving* (\$/m) = \$205 Repaving* (\$/m²) = \$14 | 4 Ferries 2 Routes 9 | 4 Ferries 2 Routes 10 | 4 Ferries 2 Routes 11 |
| CASH FLOW (Constant 2003 Dollars): | | | |
| LIABILITIES: | | | |
| Initial Cost of Constr. & Project Development: | \$58,000,000 | \$56,000,000 | \$50,000,000 |
| Year 2003 to Year 2005 (Beginning of Year) | | | |
| Annual Operating & Maintenance Costs: | \$3,336,000 | \$3,336,000 | \$3,336,000 |
| Year 2006 to 2025 (End of Year) | | | |
| Periodic Maintenance Costs: | | | |
| Repaving: | \$1,527,740 | \$1,623,475 | \$1,213,955 |
| Frequency (Years): | 20 | 20 | 20 |
| Length Project (m): | 6134 | 6601 | 4995 |
| Parking Lot (m²): | 19305 | 19305 | 13570 |
| Mechanical/Electrical Equipment Replacement: | \$10,488,000 | \$10,488,000 | \$10,488,000 |
| Frequency (Years): | 25 | 25 | 25 |
| Terminal Maintenance: | \$6,990,000 | \$6,990,000 | \$6,990,000 |
| Frequency (Years): | 10 | 10 | 10 |
| Existing Ferry Replacment: | \$3,825,000 | \$3,825,000 | \$3,825,000 |
| Year Ferry 2 Replaced: | 10 | 10 | 10 |
| Ferry Replacement(1): | \$3,825,000 | \$3,825,000 | \$3,825,000 |
| Frequency (Years): | 50 | 50 | 50 |
| EQUITY: | | | |
| Salvage Value**: | | | |
| *Paving Unit Costs Include: 10% Mobilization 15% Contingencies 8% Engineering/Admin. 15% Construction Mngmnt | Bridge(s): Construction Cost: Life of Bridge(s): | Bridge(s): Construction Cost: Life of Bridge(s): | Bridge(s): Construction Cost: Life of Bridge(s): |
| | \$0 | \$0 | \$0 |
| | \$0 | \$0 | \$0 |
| | 75 | 75 | 75 |
| | Parking Garage(s): Construction Cost: Life of Parking Garage(s): | Parking Garage(s): Construction Cost: Life of Parking Garage(s): | Parking Garage(s): Construction Cost: Life of Parking Garage(s): |
| | \$0 | \$0 | \$0 |
| | \$0 | \$0 | \$0 |
| | 75 | 75 | 75 |
| | Paving/Repaving: | Paving/Repaving: | Paving/Repaving: |
| | \$0 | \$0 | \$0 |
| Mechanical/Electrical Equipment/Replacement: | \$2,097,600 | \$2,097,600 | \$2,097,600 |
| Terminal Maintenance: | \$0 | \$0 | \$0 |
| Ferry 1/Replacement Salvage: | \$2,295,000 | \$2,295,000 | \$2,295,000 |
| Ferry 2/Replacement Salvage: | \$3,060,000 | \$3,060,000 | \$3,060,000 |
| Ferry 3-4/Replacement Salvage: | \$4,590,000 | \$4,590,000 | \$4,590,000 |
| Life of Ferry(s): | 50 | 50 | 50 |
| LIFE CYCLE COST (2003 Dollars): | | | |
| LIABILITIES: | | | |
| Initial Cost of Constr. & Project Development: | \$58,000,000 | \$56,000,000 | \$50,000,000 |
| Annual Operating & Maintenance Costs: | \$39,372,654 | \$39,372,654 | \$39,372,654 |
| Periodic Maintenance Costs: | | | |
| Repaving: | \$0 | \$0 | \$0 |
| Mechanical/Electrical Equipment Replacement: | \$0 | \$0 | \$0 |
| Terminal Maintenance: | \$4,094,462 | \$4,094,462 | \$4,094,462 |
| Ferry 1 Replacement (initial replacment not included): | \$0 | \$0 | \$0 |
| Ferry 2 Replacement: | \$2,240,532 | \$2,240,532 | \$2,240,532 |
| Ferry 3-4 Replacement: | \$0 | \$0 | \$0 |
| TOTAL LIFE CYCLE COST OF LIABILITIES : | \$103,707,647 | \$101,707,647 | \$95,707,647 |
| EQUITY: | | | |
| Salvage Value**: | | | |
| Bridge(s): | \$0 | \$0 | \$0 |
| Parking Garage(s): | \$0 | \$0 | \$0 |
| Paving/Repaving: | \$0 | \$0 | \$0 |
| Mechanical/Electrical Equipment/Replacement: | \$814,264 | \$814,264 | \$814,264 |
| Terminal Maintenance: | \$0 | \$0 | \$0 |
| Ferry 1/Replacement Salvage: | \$890,892 | \$890,892 | \$890,892 |
| Ferry 2/Replacement Salvage: | \$1,187,856 | \$1,187,856 | \$1,187,856 |
| Ferry 3-4/Replacement Salvage: | \$1,781,784 | \$1,781,784 | \$1,781,784 |
| TOTAL LIFE CYCLE COST OF EQUITY : | \$4,674,797 | \$4,674,797 | \$4,674,797 |
| TOTAL LIFE CYCLE COST : | (\$99,032,851) | (\$97,032,851) | (\$91,032,851) |
| Average Annual O&M Costs: | \$4,989,907.00 | \$4,994,693.75 | \$4,974,217.75 |

The Average Annual O&M Costs is not used in calculating Life Cycle Costs. The Average Annual O&M Cost includes all initial construction and project development costs, plus all annual operating and maintenance costs, plus all periodic maintenance costs.